NATIONAL GEOGRAPHIC
THEME SETS

Using Electricity

TEACHER'S GUIDE • SCIENCE

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NATIONAL GEOGRAPHIC
School Publishing

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About the Program

"Making A Difference Means Making It Different."

From Position Statement of International Reading Association (March 2000)

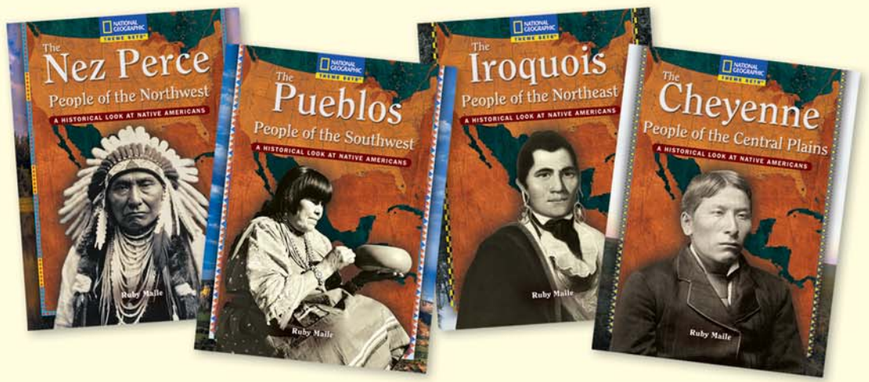
One size does not fit all

Today's students come from a variety of cultural and language backgrounds, socioeconomic levels, and academic levels. Educators realize one size does not fit all, so no one book can meet the needs of all students.

The **Theme Sets** program provides differentiated resources for teachers to meet the diverse needs of their students. Each ***Theme Set*** provides four books crafted to match the wide range of reading levels within each classroom. All books provide the same core concepts but within different contexts and at different reading levels. For students who struggle with content-area textbooks, the **Theme Sets** provide core curriculum that is broken down, not watered down. For students who are reading on grade level, the **Theme Sets** provide literacy and core content curriculum with appropriate challenge and support. For students who need more challenging material, the **Theme Sets** provide literacy and core content in ways that develop students' critical thinking skills.

Equity in education is every child's right

Equity in education is tied to students' access to quality curriculum, materials, and teaching. Yet students, especially those who struggle with reading, are often denied access to core content. It is essential that these students have access to grade-level curriculum to prevent the knowledge gap from widening as they proceed through the grades. The **Theme Sets** offer grade-level curriculum to students across a wide range of reading levels. The **Theme Sets** also support students as they develop reading and writing strategies and skills.


The Nez Perce People of the Northwest
The Pueblos People of the Southwest
The Iroquois People of the Northeast
The Cheyenne People of the Central Plains
A HISTORICAL LOOK AT NATIVE AMERICANS
Ruby Maile

Program Goals

National Geographic School Publishing is committed to providing the highest quality materials that meet the diverse needs of teachers and students.

The Theme Sets offer materials that

- **facilitate differentiated instruction.**
- **promote educational equity through access for all students.**
- **provide essential standards-based curriculum in science and social studies.**
- **support the developmental needs of students at a variety of reading levels.**
- **provide explicit instruction in vocabulary and comprehension strategies.**

Program Consultants

Shirley Dickson, Ph.D. is an educational consultant in literacy, kindergarten through the secondary grades. Her expertise includes the design of effective and comprehensive reading instruction for typical and struggling learners and research in improving reading achievement. She also works with districts and teachers as they improve the reading achievement of their students, particularly students in grades 4 and 5. Dr. Dickson is a former Director of Literacy for the Education Commission of the States; Director of Statewide Curriculum Initiatives for Texas, including the Reading and Math Initiatives; Director of Reading for Texas; professor in literacy and special education at Northern Illinois University; and special educator.

Margit E. McGuire, Ph.D. is Director and Professor of Teacher Education at Seattle University and a former president of the National Council for the Social Studies. She is the recipient of the Washington Award for Excellence in Teacher Preparation and has presented nationally and internationally on topics related to social studies and teacher preparation. She is the author of the Storypath Program and is engaged in a number of research projects on the Storypath approach both in Seattle, Washington and Sydney, Australia.

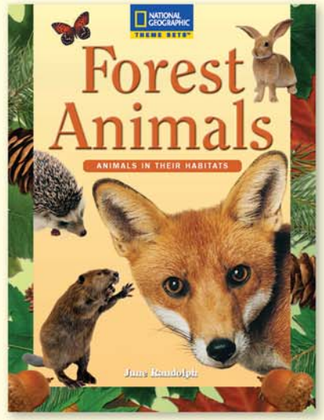
James A. Shymansky, Ph.D. is an E. Desmond Lee Professor of Science Education at the University of Missouri-St. Louis. He currently directs the "Science Cooperatives Project," a five-year NSF systemic reform effort involving 1,200 elementary school teachers from 36 school districts in rural Missouri and Iowa. He has authored an elementary science textbook series and a K–12 science review series. He has also authored more than 100 research publications, book chapters, and monographs on teaching and learning elementary school science. He is the past editor of the *Journal of Research in Science Teaching* and currently senior editor of the *International Journal of Science and Mathematics Education* and President-Elect of the National Association for Research in Science Teaching.

Program Components

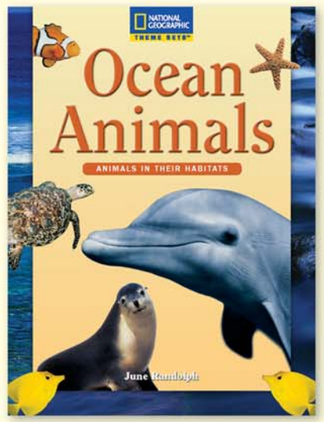
Student Books

Each ***Theme Set*** includes four books on different topics. Each book is written at a different reading level and focuses on a specific topic to explain and illustrate the central theme.

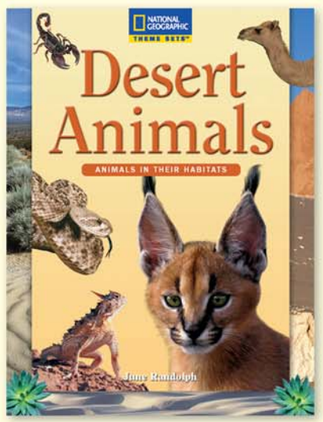
All four books are firmly connected together. They all develop a common set of Key Concepts and core vocabulary. The goal is that all students acquire essential core content at their own reading levels.



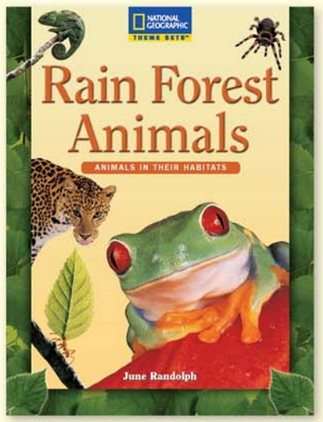
Level A



Level B



Level C

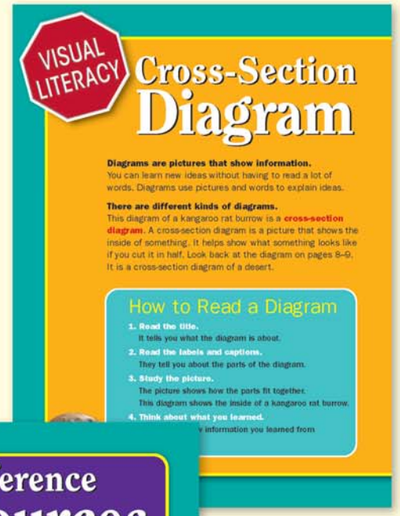


Level D

Social Studies Themes	Book Titles			
	Level A	Level B	Level C	Level D
A Historical Look at Native Americans	The Nez Perce: People of the Northwest	The Pueblos: People of the Southwest	The Iroquois: People of the Northeast	Cheyenne: People of the Central Plains
Ancient Civilizations	Egypt	China	Greece	Rome
Colonial America	South Carolina	Virginia	Pennsylvania	Massachusetts
Communication Around the World	Telephone	Radio	Television	Internet
Communities and Their Locations	Missoula, Montana	Boston, Massachusetts	St. Louis, Missouri	Honolulu, Hawaii
Cultures and Celebrations	Mexico	Italy	Japan	Egypt
Immigration to the United States	Irish Immigration	Chinese Immigration	Mexican Immigration	German-Jewish Immigration
Immigration Today	Ukraine	Guatemala	Jamaica	Vietnam
Inventions Bring Change	The Reaper	The Railroad	Water-Powered Mills	The Cotton Gin
Providing Goods	From Cotton to Blue Jeans	From Trees to Paper	From Wheat to Bread	From Cows to Ice Cream
Trade Across Time and Cultures	Silk	Spices	Salt	Fur
Westward Expansion	Ohio	Oregon	California	The Great Plains

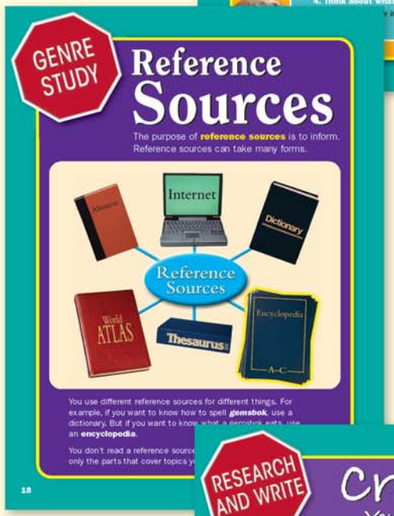
Science Themes	Book Titles			
	Level A	Level B	Level C	Level D
Animals in Their Habitats	Forest Animals	Ocean Animals	Desert Animals	Rain Forest Animals
Cells at Work	Skin	Muscles	Blood	Bone
Energy	Energy in the Home	Energy in the Factory	Energy at the Airport	Energy at the Sports Arena
Extreme Weather	Droughts	Floods	Tornadoes	Hurricanes
Life Cycles	Giant Pandas	Monarch Butterflies	Poison Dart Frogs	Komodo Dragons
Our Solar System	Mercury	Mars	Jupiter	Saturn
Plants in Their Habitats	Tropical Rain Forests	Deserts	Temperate Forests	Wetlands
Shaping Earth's Surface	Wind	Water	Ice	Earthquakes and Volcanoes
Using Earth's Resources	Indonesia's Rain Forests	Greenland's Ocean Region	Australia's Deserts	Peru's Mountains
Using Electricity	Electricity at Home	Electricity at Play	Electricity at School	Electricity at Work
Using Simple Machines	Machines in the Home	Machines in Sports	Machines in Construction	Machines in Health
Weather and Climate	Polar Climate	Temperate Climate	Desert Climate	Tropical Climate

Student Book Features


VISUAL LITERACY
Cross-Section Diagram
Diagrams are pictures that show information.
You can learn new ideas without having to read a lot of words. Diagrams use pictures and words to explain ideas.
There are different kinds of diagrams.
This diagram of a kangaroo rat burrow is a cross-section diagram. A cross-section diagram is a picture that shows the inside of something. It helps show what something looks like if you cut it in half. Look back at the diagram on pages 8–9. It is a cross-section diagram of a desert.
How to Read a Diagram
1. Read the title.
It tells you what the diagram is about.
2. Read the labels and captions.
They tell you about the parts of the diagram.
3. Study the picture.
The picture shows how the parts fit together.
This diagram shows the inside of a kangaroo rat burrow.
4. Think about what you learned.

Visual Literacy

Each ***Theme Set*** includes explicit instruction in one visual literacy skill. Students are shown how to read and use diagrams, maps, graphs, and other examples of visual information.


GENRE STUDY
Reference Sources
The purpose of reference sources is to inform. Reference sources can take many forms.
Internet
Dictionary
Reference Sources
World ATLAS
Thesaurus
Encyclopedia
A–C
You use different reference sources for different things. For example, if you want to know how to spell gemsbok, use a dictionary. But if you want to know what a gemsbok eats, use an encyclopedia.
You don't read a reference source
only the parts that cover topics y
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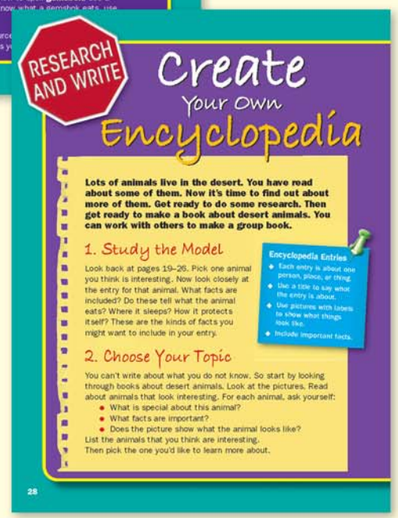
Genre Study

Each ***Theme Set*** focuses on one nonfiction writing genre form. The genre is defined and explained to students. At the same time, students see how the genre is connected to the subject matter of the ***Theme Set***. Genres covered in the **Theme Sets** program include, biographies, how-to books, compare and contrast article, news report, reference sources, and others.


RESEARCH AND WRITE
Create Your Own Encyclopedia
Lots of animals live in the desert. You have read about some of them. Now it's time to find out about more of them. Get ready to do some research. Then get ready to make a book about desert animals. You can work with others to make a group book.
1. Study the Model
Look back at pages 19–26. Pick one animal you think is interesting. Now look closely at the entry for that animal. What facts are included? Do these tell what the animal eats? Where it sleeps? How it protects itself? These are the kinds of facts you might want to include in your entry.
Encyclopedia Entries
Each entry is about one person, place, or thing.
Use a title to say what the entry is about.
Use pictures with labels to show what things look like.
Include important facts.
2. Choose Your Topic
You can't write about what you do not know. So start by looking through books about desert animals. Look at the pictures. Read about animals that look interesting. For each animal, ask yourself:
What is special about this animal?
What facts are important?
Does the picture show what the animal looks like?
List the animals that you think are interesting.
Then pick the one you'd like to learn more about.
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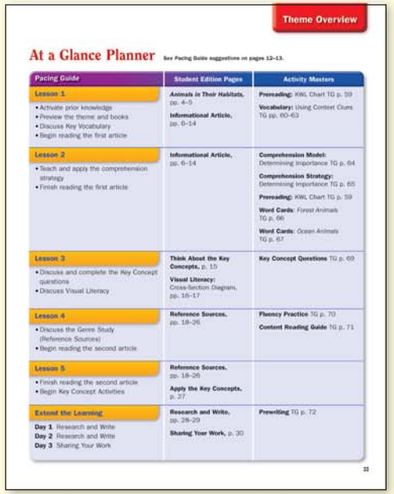
Research and Write

Students have the opportunity to practice their own researching and writing skills by creating their own work based on the genre study they have learned about in the books.

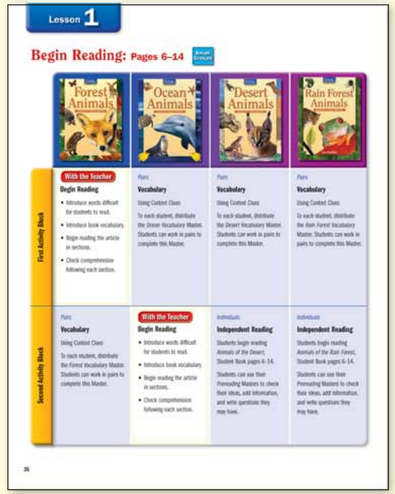
Teacher's Guide Features

Each ***Theme Set*** has a separate Teacher's Guide that provides clear instructional guidelines and comprehensive instructional plans.


Theme Overview
At a Glance Planner
See Pacing Guide suggestions on pages 12–13.
Pacing Guide
Student Edition Pages
Activity Masters
Lesson 1
Activate prior knowledge
Preview the theme and books
Discuss Key Vocabulary
Begin reading the first article
Animals in Their Habitats, pp. 4–5
Informational Article, pp. 6–14
Prereading: KWL Chart TG p. 59
Vocabulary: Using Context Clues TG pp. 60–63
Lesson 2
Teach and apply the comprehension strategy
Finish reading the first article
Informational Article, pp. 6–14
Comprehension Model: Determining Importance TG p. 64
Comprehension Strategy: Determining Importance TG p. 65
Prereading: KWL Chart TG p. 59
Word Cards: Forest Animals TG p. 66
Word Cards: Ocean Animals TG p. 67
Lesson 3
Discuss and complete the Key Concept questions
Discuss Visual Literacy
Think About the Key Concepts, p. 15
Visual Literacy: Cross-Section Diagram, pp. 16–17
Key Concept Questions TG p. 69
Lesson 4
Discuss the Genre Study (Reference Sources)
Begin reading the second article
Reference Sources, pp. 18–26
Fluency Practice TG p. 70
Content Reading Guide TG p. 71
Lesson 5
Finish reading the second article
Begin Key Concept Activities
Reference Sources, pp. 18–26
Apply the Key Concepts, p. 27
Extend the Learning
Day 1 Research and Write
Day 2 Research and Write
Day 3 Sharing Your Work
Research and Write, pp. 28–29
Sharing Your Work, p. 30
Prewriting TG p. 72

Planning Guides

Each guide contains planning guides to help you effectively manage instructional time.


Lesson 1
Begin Reading: Pages 6–14
Forest Animals
Ocean Animals
Desert Animals
Rain Forest Animals
First Activity Block
Second Activity Block
With the Teacher
Begin Reading
Introduce words difficult for students to read.
Introduce book vocabulary.
Begin reading the article in sections.
Check comprehension following each section.
Pairs
Vocabulary
Using Context Clues
To each student, distribute the Forest Vocabulary Master. Students can work in pairs to complete this Master.
To each student, distribute the Ocean Vocabulary Master. Students can work in pairs to complete this Master.
To each student, distribute the Desert Vocabulary Master. Students can work in pairs to complete this Master.
To each student, distribute the Rain Forest Vocabulary Master. Students can work in pairs to complete this Master.
Individuals
Independent Reading
Students begin reading Animals of the Desert, Student Book pages 6–14.
Students can use their Prereading Masters to check their ideas, add information, and write questions they may have.
Students begin reading Animals of the Rain Forest, Student Book pages 6–14.
Students can use their Prereading Masters to check their ideas, add information, and write questions they may have.
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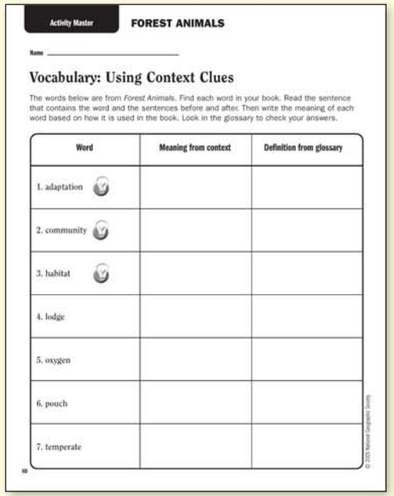
Lesson Plans

Each guide contains comprehensive lesson plans that help you customize instruction.


Activity Master
FOREST ANIMALS
Name
Vocabulary: Using Context Clues
The words below are from Forest Animals. Find each word in your book. Read the sentence that contains the word and the sentences before and after. Then write the meaning of each word based on how it is used in the book. Look in the glossary to check your answers.
Word
Meaning from context
Definition from glossary
1. adaptation
2. community
3. habitat
4. lodge
5. oxygen
6. pouch
7. temperate
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Activity Masters

Each guide contains Activity Masters to reinforce core skills and strategies.

Assessment Test
FOREST ANIMALS
Name
Test
Circle the letter of the correct answer.
1. Which is NOT true of a temperate forest?
A. Temperate forests are cold in winter.
B. Temperate forests have different levels.
C. Temperate forests are a kind of habitat.
D. Temperate forests do not have water in them.
2. What word is defined as a group of animals and plants living together in a habitat?
A. community
B. adaptation
C. temperate
D. lodge
3. All forest animals
A. carry their babies in pouches.
B. have webbed feet.
C. have adaptations to survive in the forest.
D. live in the shrub layer.
4. A reference source that gives basic facts about many topics is called
A. an encyclopedia.
B. an atlas.
C. a dictionary.
D. a thesaurus.
5. Which of the following is an important part of an encyclopedia entry?
A. title
B. photograph
C. caption
D. all of the above
6. Explain how adaptations can help animals survive. Use two examples of adaptations in your answer.
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Assessment

Each guide contains book-level assessments to help you measure student progress.

Developing Literacy Skills

The **Theme Sets** program supports developing readers and writers by providing appropriate scaffolding and challenges that match the needs of a wide range of students.

Vocabulary

Within each theme, essential content words are targeted as Key Vocabulary and explicitly taught to all students before reading. As students read, they encounter these words repeatedly within rich contexts and have opportunities to use the words in oral and written activities. In addition to the Key Vocabulary covered in all four books, specific book-level words are taught and used in small group and independent activities.

Comprehension

Each theme targets one specific comprehension strategy so that students learn and apply that strategy as they read. These strategies include determining importance, making connections, visualizing, asking questions, making inferences, and synthesizing. Teaching notes provide step-by-step help for explicit instruction, modeling, guided practice, and independent practice.

Visual Literacy

Understanding how to read diagrams, maps, graphs, charts, and other visual aids is critical to comprehending nonfiction. Each theme provides explicit instruction and practice in one kind of visual aid so that students learn how to extract and interpret information that is presented visually.

Text Structure and Genres

For each theme, the characteristics of one nonfiction genre/text structure are explicitly taught in the Genre Study. The second article in each Student Book serves as a model of that genre. Students also apply their understanding of that genre by writing a piece that uses that specific genre as an organizational pattern.

Research and Write

The Research and Write lesson that concludes each book in a theme provides students with an opportunity to show what they have learned. They research additional information about the topic covered in their book and then write in the specific nonfiction form that is the focus of the Genre Study and modeled in the second article.

Flexible Use

Flexibility is a critical factor in the differentiated classroom. The **Theme Sets** program is designed to provide teachers with the flexibility needed to make sure that every child succeeds and has access to core content.

Flexible to Fit a Variety of Programs

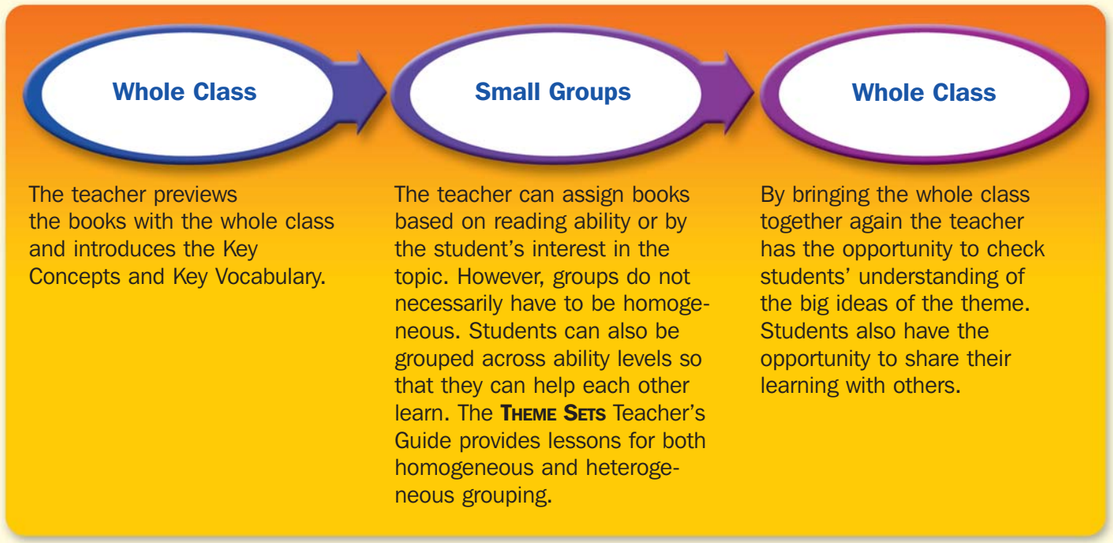
Core instruction: The **Theme Sets** are designed to be used as part of your core curriculum. They provide essential and high interest content for many of the core content areas in science and social studies. Use one or more ***Theme Sets*** instead of content-area texts.

Supplemental: The **Theme Sets** can also be used as a supplement to your content-area texts and reading program. They provide extended opportunities for students to explore core content in depth. Students will also learn more as they read the content at their own reading level.

Tutorial: The **Theme Sets** program is ideally suited to special tutorial programs such as summer school or after school programs. Educators can select those themes that fit their curriculum objectives. The **Theme Sets** program also offers versatility. Each book in a theme is divided into several parts.

Flexible Grouping

The **Theme Sets** program encourages the teacher to use flexible grouping in the classroom.


Whole Class
Small Groups
Whole Class
The teacher previews the books with the whole class and introduces the Key Concepts and Key Vocabulary.
The teacher can assign books based on reading ability or by the student's interest in the topic. However, groups do not necessarily have to be homogeneous. Students can also be grouped across ability levels so that they can help each other learn. The Theme Sets Teacher's Guide provides lessons for both homogeneous and heterogeneous grouping.
By bringing the whole class together again the teacher has the opportunity to check students' understanding of the big ideas of the theme. Students also have the opportunity to share their learning with others.

Pacing Guide

The **Theme Sets** program includes easy-to-follow pacing. This provides the flexibility needed to custom fit instruction to scheduling needs. The following charts show two pacing plans, one for five 90-minute lessons and one for ten 45-minute lessons.

90-minute pacing — 5 Days		Teacher Guide Pages
Lesson 1		
Day 1:	Introduce the Theme	page 34
	Introduce the Books	page 34–35
	Begin Reading: Pages 6–16 First Activity Block Second Activity Block	pages 36–37
	Check Understanding	page 38
Lesson 2		
Day 2:	Introduce Comprehension Strategy	page 39
	Finish Reading: Pages 6-–16 First Activity Block Second Activity Block	pages 40–41
	Check Understanding	page 42
Lesson 3		
Day 3:	Share Learning	page 43
	Think About Key Concept Questions	page 44–45
	Visual Literacy	page 46
Lesson 4		
Day 4:	Introduce Genre Study	page 47
	Begin Reading: pages 21–26 First Activity Block Second Activity Block	pages 48–49
	Check Understanding	page 50
Lesson 5		
Day 5:	Introduce Key Concept Activities	page 51
	Finish Reading: Pages 21–26 First Activity Block Second Activity Block	pages 52–53
	Check Understanding	page 54
Extend the Learning		
Day 1:	Research and Write	page 55
Day 2:	Research and Write	page 56
Day 3:	Sharing Your Work	page 57

45-minute pacing — 10 Days		Teacher Guide Pages
Lesson 1		
Day 1:	Introduce the Theme	page 34
	Introduce the Books	page 34–35
	Begin Reading: Pages 6–16 First Activity Block	pages 36–37
Day 2:	Begin Reading: Pages 6–16 Second Activity Block	pages 36–37
	Check Understanding	page 38
Lesson 2		
Day 3:	Introduce Comprehension Strategy	page 39
	Finish Reading: Pages 6–16 First Activity Block	pages 40–41
Day 4:	Finish Reading: Pages 6–16 Second Activity Block	pages 40–41
	Check Understanding	page 42
Lesson 3		
Day 5:	Share Learning	page 43
Day 6:	Think About Key Concept Questions	page 44–45
	Visual Literacy	page 46
Lesson 4		
Day 7:	Introduce Genre Study	page 47
	Begin Reading: pages 21–26 First Activity Block	pages 48–49
Day 8:	Begin Reading: pages 21–26 Second Activity Block	pages 48–49
	Check Understanding	page 50
Lesson 5		
Day 9:	Introduce Key Concept Activities	page 51
	Finish Reading: Pages 21–26 First Activity Block	pages 52–53
Day 10:	Finish Reading: Pages 21–26 Second Activity Block	pages 52–53
	Check Understanding	page 54
Extend the Learning		
Day 1:	Research and Write	page 55
Day 2:	Research and Write	page 56
Day 3:	Sharing Your Work	page 57

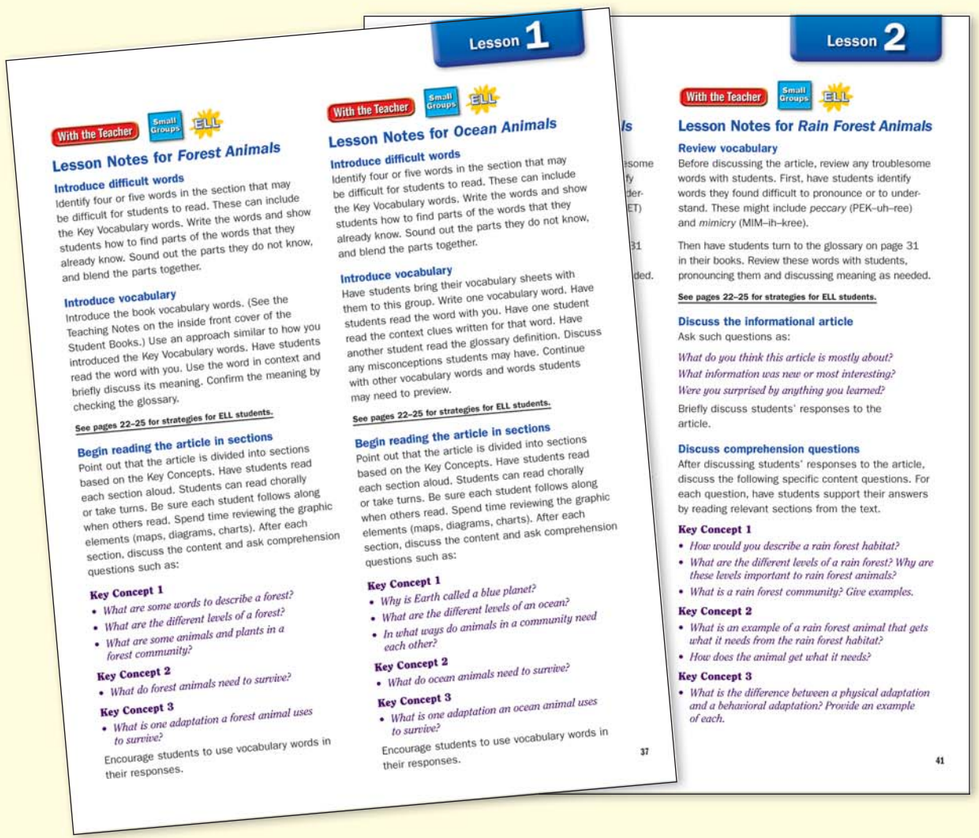
Differentiated Instruction

Although the concept of differentiation is simple, the implementation can be challenging. Differentiation is based on the fact that every child is unique and that classroom instruction should adapt to meet student differences. Many educators agree that instruction should have the flexibility and relevance to address the various readiness levels and learning preferences that are present in every classroom.

The **Theme Sets** program is designed to provide equal access to core content for all students at varying reading levels. The detailed lesson plan encourages flexibility in grouping students. The content provides essential core learning, and the four reading levels provide access for all. Materials are designed so teachers have the tools and information they need to implement a differentiated instructional model.

Flexible Grouping

Students will benefit from a flexible working environment where the teacher includes whole class, small group, and individual instruction that takes into account the ability and readiness of each student in the class.


Lesson 1
With the Teacher
Small Groups
ELL
Lesson Notes for Forest Animals
Introduce difficult words
Identify four or five words in the section that may be difficult for students to read. These can include the Key Vocabulary words. Write the words and show students how to find parts of the words that they already know. Sound out the parts they do not know, and blend the parts together.
Introduce vocabulary
Introduce the book vocabulary words. (See the Teaching Notes on the inside front cover of the Student Books.) Use an approach similar to how you introduced the Key Vocabulary words. Have students read the word with you. Use the word in context and briefly discuss its meaning. Confirm the meaning by checking the glossary.
See pages 22–25 for strategies for ELL students.
Begin reading the article in sections
Point out that the article is divided into sections based on the Key Concepts. Have students read each section aloud. Students can read chorally or take turns. Be sure each student follows along when others read. Spend time reviewing the graphic elements (maps, diagrams, charts). After each section, discuss the content and ask comprehension questions such as:
Key Concept 1
What are some words to describe a forest?
What are the different levels of a forest?
What are some animals and plants in a forest community?
Key Concept 2
What do forest animals need to survive?
Key Concept 3
What is one adaptation a forest animal uses to survive?
Encourage students to use vocabulary words in their responses.
37
With the Teacher
Small Groups
ELL
Lesson Notes for Ocean Animals
Introduce difficult words
Identify four or five words in the section that may be difficult for students to read. These can include the Key Vocabulary words. Write the words and show students how to find parts of the words that they already know. Sound out the parts they do not know, and blend the parts together.
Introduce vocabulary
Have students bring their vocabulary sheets with them to this group. Write one vocabulary word. Have students read the word with you. Have one student read the context clues written for that word. Have another student read the glossary definition. Discuss any misconceptions students may have. Continue with other vocabulary words and words students may need to preview.
See pages 22–25 for strategies for ELL students.
Begin reading the article in sections
Point out that the article is divided into sections based on the Key Concepts. Have students read each section aloud. Students can read chorally or take turns. Be sure each student follows along when others read. Spend time reviewing the graphic elements (maps, diagrams, charts). After each section, discuss the content and ask comprehension questions such as:
Key Concept 1
Why is Earth called a blue planet?
What are the different levels of an ocean?
In what ways do animals in a community need each other?
Key Concept 2
What do ocean animals need to survive?
Key Concept 3
What is one adaptation an ocean animal uses to survive?
Encourage students to use vocabulary words in their responses.
Lesson 2
With the Teacher
Small Groups
ELL
Lesson Notes for Rain Forest Animals
Review vocabulary
Before discussing the article, review any troublesome words with students. First, have students identify words they found difficult to pronounce or to understand. These might include peccary (PEK–uh–ree) and mimicry (MIM–ih–kree).
Then have students turn to the glossary on page 31 in their books. Review these words with students, pronouncing them and discussing meaning as needed.
See pages 22–25 for strategies for ELL students.
Discuss the informational article
Ask such questions as:
What do you think this article is mostly about?
What information was new or most interesting?
Were you surprised by anything you learned?
Briefly discuss students' responses to the article.
Discuss comprehension questions
After discussing students' responses to the article, discuss the following specific content questions. For each question, have students support their answers by reading relevant sections from the text.
Key Concept 1
How would you describe a rain forest habitat?
What are the different levels of a rain forest? Why are these levels important to rain forest animals?
What is a rain forest community? Give examples.
Key Concept 2
What is an example of a rain forest animal that gets what it needs from the rain forest habitat?
How does the animal get what it needs?
Key Concept 3
What is the difference between a physical adaptation and a behavioral adaptation? Provide an example of each.
41

Essential Core Learning

Every student should have access to the essential literacy, science and social studies content outlined in standards based curriculum. Each of the four books that make up a ***Theme Set*** Unit develops a common set of Key Concepts and core vocabulary. The goal is that each student acquires the same essential information by accessing core content at his or her own reading level.

- The same Key Concepts are developed across all levels.
- All students learn the same Key Vocabulary.
- All students learn the same visual literacy skills.
- All students can contribute to whole class discussions and activities.
- All students learn and apply the same comprehension strategy.
- All students extend their learning as they research and write.
- All students learn about a variety of genres and forms.

By focusing on essential skills and knowledge, students will be able to recall and understand the important elements of the subject they are learning about.

Differentiated Reading

All students should be given the opportunity to access the content at their own level of readiness and ability. The four Student Books in each ***Theme Set*** provide the same critical core content at four different reading levels. The teacher now has materials for struggling readers through fluent readers in her class. Each book presents the material in a variety of ways. By using the text, pictures, and charts, students have several access points to develop their understanding of the material.

Each ***Theme Set*** is accompanied by a comprehensive Teacher's Guide that builds on the best practices in education. The activities vary in complexity, allowing access to all students. Fluent readers are encouraged to work on their own. Readers that need extra help are provided with more scaffolding. Examples of scaffolding used in the **Theme Sets** include explicit instruction, modeling, guided practice, and independent practice.

The Theme Sets vary across levels by

- **increasing the text load and using more complex sentence structure as levels become more challenging.**
- **including vocabulary that grows from simple language to increasingly more difficult words.**
- **expanding concept load as the levels become more challenging.**
- **developing Key Concepts visually as well as verbally.**
- **providing additional picture support at the easier levels.**

Research-Based Instruction

The **Theme Sets** program incorporates best practices that have been identified through research. Practices critical to success in reading and comprehension are highlighted below, as well as ways that the **Theme Sets** support these practices.

Differentiation

"Students who are the same age differ in their readiness to learn, their interests, their styles of learning, their experiences and their life circumstances."

(Reconcilable Differences? Standards-Based Teaching and Differentiation. Carol Ann Tomlinson. Educational Leadership, Sept. 2000)

- The **Theme Sets** program teaches the same critical core content to every student from struggling to fluent readers.
- Each theme includes four high-interest topics allowing teachers to group their students by reading ability or by interest in the topic.

Appropriate Reading Level

"Effective teachers provide their readers with practice reading materials at their appropriate reading level."

(The Rand Report p.43)

- The **Theme Sets** program provides equal access to science and social studies content for all students at varying reading levels.

Reading in the Content Area

"Teachers who provide comprehension strategy instruction that is deeply connected within the context of subject matter learning, such as history and science, foster comprehension development."

(The Rand Report p.39)

- Each ***Theme Set*** explores a core area of science or social studies content. Students learn strategies to help them access and comprehend the content as they work through the lessons.

Comprehension

"Text comprehension can be improved by instruction that helps readers use specific comprehension strategies."

(Put Reading First p.49)

- Each ***Theme Set*** focuses on one of these six reading comprehension strategies: making connections, asking questions, visualizing, making inferences, determining importance, and synthesizing.

Vocabulary

"Students learn vocabulary directly when they are explicitly taught both individual words and word-learning strategies. Direct vocabulary instruction aids reading comprehension."

(Put Reading First p.35)

- Each ***Theme Set*** has key words that are explicitly taught to all students.
- Each Student Book contains book-level vocabulary words. These words are explicitly taught and repeated often in the text.
- Students are encouraged to use word learning strategies such as context clues and using word parts to determine meaning.

Fluency

"Repeated and monitored oral reading improves reading fluency and overall reading achievement."

(Put Reading First p.24)

- The instructional design of the **Theme Sets** program allows students to repeat reading. The lessons give time to the teacher to monitor her students' progress.

Genres and Forms

"Students who are aware of text structure organize the text as they read, and they recognize and retain the important information it contains."

- The **Theme Sets** program identifies the characteristics of the major nonfiction genres and forms. These help students develop an understanding of the framework, or schema, for the genre so that new information can be remembered.

Factors Affecting Readability

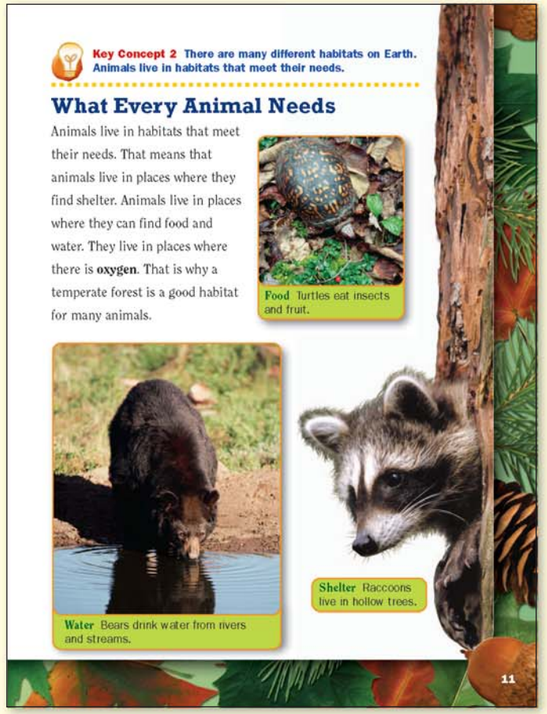
Teachers can choose from a variety of readability criteria to help make good judgments in choosing appropriate books for students. Yet, as helpful as these criteria might be, no one variable can provide a complete picture of text difficulty.

The four books in each ***Theme Set*** are designed to address the different reading levels within most classrooms. While the Key Concepts are the same across all levels, the texts have been crafted to address the developmental reading needs of a wide range of students.

In determining text difficulty, numerous variables were considered, including nonfiction vocabulary, sentence complexity, concept density, concept complexity, and text density.

Vocabulary	• Vocabulary growth moves from words that are easy, familiar, highly frequent, and usually short, to words that are less common, less frequent,and more abstract or technical. • Multisyllabic words increase as texts become more challenging. • The number of content words highlighted and included in the glossary increases across levels.
Sentence Complexity	• Sentence structure moves from simple, predictable language patterns to more complex patterns with more embedded ideas. • Sentence length increases as levels become more challenging.
Concept Density	• The three Key Concepts in each theme are developed in all levels. • Additional related concepts expand the Key Concepts as the books become more challenging.
Concept Complexity	• Ideas are carefully developed across all levels, but greater prior knowledge is assumed at the more challenging levels. • Concept development at more challenging levels require more analysis and critical abilities.
Text Density	• The amount of text per page and the length of paragraphs generally increase as books become more challenging. • Easier, more familiar topics, such as animals, may include less text than abstract, less familiar topics, such as energy.

from Level A, *Forest Animals*


Key Concept 2 There are many different habitats on Earth. Animals live in habitats that meet their needs.
What Every Animal Needs
Animals live in habitats that meet their needs. That means that animals live in places where they find shelter. Animals live in places where they can find food and water. They live in places where there is oxygen. That is why a temperate forest is a good habitat for many animals.
Food Turtles eat insects and fruit.
Water Bears drink water from rivers and streams.
Shelter Raccoons live in hollow trees.
11

from Level D, *Rain Forest Animals*

Key Concept 2 There are many different habitats on Earth. Animals live in habitats that meet their needs.
What Every Animal Needs
Like all animals on Earth, rain forest animals need to have their basic needs fulfilled. They need food, shelter, water, and oxygen for survival. They find all of these things in their rain forest habitats.
In the rain forest, the mixture of rain and heat creates an ideal place for plants to grow. Trees flower and produce seeds all year round. The variety of plant life provides food for many kinds of animals. Some birds, bats, and insects eat only fruit and flower nectar. Other animals, such as sloths and monkeys, eat leaves. The plant-eating animals may, in turn, become food for meat-eating animals. These include jaguars and anacondas.
Finding water is not hard in the rain forest. In such a wet habitat, rivers, streams, and lush plants provide all the water the animals need.
The thick canopy and dense ground foliage of the rain forest shelter many creatures. They help them hide from enemies. Some species have special colors or patterns that help them hide in their plant shelters.
Millions of leaf cutter ants live on the forest floor. They use leaves to grow a special fungus for food.
11

Comparing the Levels

- **Vocabulary becomes more challenging.**
- **Sentences become more complex.**
- **Same Key Concepts but additional related concepts included in more challenging levels.**
- **Concept development at more challenging levels requires more critical thinking.**
- **Text load increases.**

Placing Students in Levels

Matching books to readers is critical in any successful reading program. Selecting books that students can read and want to read involves ongoing assessment of students' reading abilities, an awareness of students' interests, and the ability to judge the difficulty levels of texts.

Student Reading Ability

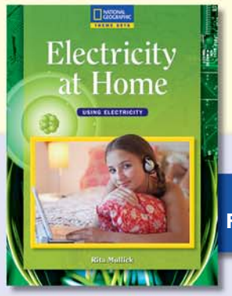
Use the assessment tools and student records available in your school district as one source of information to determine a student's individual reading level. Consider also students' reading habits, self-selected reading books, and other information in students' reading portfolios. If you are unsure of the ***Theme Set*** level a student should be reading, you can have a student read the first 100 words to you orally. If the student reads with less than 90% accuracy, place the student in an easier level. If the student reads with 95% or greater accuracy, place the student in a more difficult level. Reassess student placement periodically.

Student Interest and Motivation

Students who are particularly interested in a topic often bring rich background knowledge to that topic. They are motivated to read more about the topic. This prior knowledge and motivation can allow readers to stretch beyond their overall reading level. In assigning books to students, consider special interest and knowledge. Some students may be interested in reading about a topic in a ***Theme Set*** that is above their reading ability. Provide these students with additional scaffolding and support before, during, and after reading.

Theme Set Reading Levels

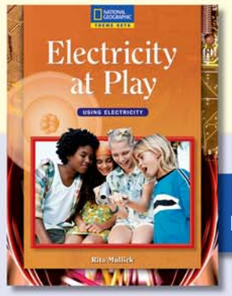
The four books in each ***Theme Set*** provide a range of reading levels to facilitate differentiated instruction. However, while Levels A and B are written for struggling readers, they do not look like typical easy-to-read texts. Because of the importance for students to read and learn critical content vocabulary, grade-level content vocabulary was used in Levels A and B. This critical vocabulary was then surrounded by easy-to-read text. Use these guidelines to match students with levels.



Level A
Fry score 3.2

Use Level A with

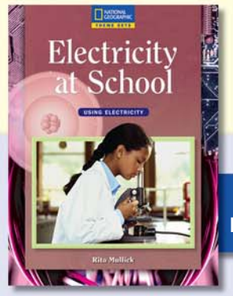
- students who are reading well below grade level.
- students who generally have limited vocabulary and background knowledge.
- students who generally are most successful with familiar words that are easy to decode and within their oral vocabulary.
- students who are most successful with text that uses short and simple sentence structures with straightforward syntax.
- students who understand content best when the text uses concrete examples to explain concepts.
- students with reading levels that range from 2.6 to 3.5.



Level B
Fry score 4.5

Use Level B with

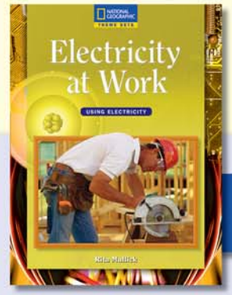
- students who are reading at or below grade level.
- students who can read two-syllable words that are easy to decode and within their oral vocabulary.
- students who best understand text that uses mostly short, simple sentences with straight-forward syntax.
- students who understand concepts that are explained carefully and use some concrete examples.
- students with reading levels that range from 3.5 to 4.5.



Level C
Fry score 5.3

Use Level C with

- students who are reading at or above grade level.
- students who have a good grasp of common vocabulary and are able to use context and other resources to unlock the meaning of technical content words.
- students who can understand simple and most complex sentence structures.
- students who, with appropriate support, can understand abstract concepts.
- students with reading levels that range from 4.8 to 5.9.



Level D
Fry score 6.0

Use Level D with

- students who are your strongest readers.
- students who have well-developed vocabularies and broad background knowledge about a range of topics.
- students who are able to understand most complex sentence structures used in expository writing.
- students who can grasp abstract concepts with appropriate support.
- students with reading levels that range from 6.0 to 6.9.

ELL

Supporting English Language Learners

To be successful in mainstream classrooms, students acquiring English need to learn grade-level content as they learn language. The **Theme Sets** provide all students with access to grade-level content in science and social studies while supporting the development of language and literacy skills. The unique instructional design of the **Theme Sets** supports English Language Learners by providing the strategies and scaffolding they need.

Key Concept 3 Adaptations help animals survive in their habitats.
Adaptations
An adaptation is something that helps an animal survive in its habitat. An adaptation can be a part of an animal's body. An adaptation can also be how the animal lives or acts.
adaptation
a body part or the way an animal acts to help it survive
Some adaptations help animals find food. Some adaptations help animals move around. Some adaptations help animals stay safe.
Finding Food Sharp eyes and ears help foxes find food.
Moving Around Webbed feet help frogs move in water.
Staying Safe Skunks spray a bad smell to scare off enemies.
12

Scaffold the Content

Target Key Concepts

English Language Learners benefit from instruction that isolates and makes explicit the big ideas of the lesson. Key Concepts are highlighted on the pages and taught through concrete examples and visuals.

Develop Key Vocabulary

English Language Learners need to build their academic vocabulary to access grade-level content. In the **Theme Sets**, Key Vocabulary is highlighted in the text and defined on the page. Key Vocabulary is repeated frequently.

Provide strong picture support

Striking National Geographic photos and illustrations support the text and concepts in comprehensive ways.

Key Concept 2 There are many different habitats on Earth. Animals live in habitats that meet their needs.
What Every Animal Needs
Like all animals on Earth, rain forest animals need to have their basic needs fulfilled. They need food, shelter, water, and oxygen for survival. They find all of these things in their rain forest habitats.
In the rain forest, the mixture of rain and heat creates an ideal place for plants to grow. Trees flower and produce seeds all year round. The variety of plant life provides food for many kinds of animals. Some birds, bats, and insects eat only fruit and flower nectar. Other animals, such as sloths and monkeys, eat leaves. The plant-eating animals may, in turn, become food for meat-eating animals. These include jaguars and anacondas.
Finding water is not hard in the rain forest. In such a wet habitat, rivers, streams, and lush plants provide all the water the animals need.
The thick canopy and dense ground foliage of the rain forest shelter many creatures. They help them hide from enemies. Some species have special colors or patterns that help them hide in their plant shelters.
Millions of leaf cutter ants live on the forest floor. They use leaves to grow a special fungus for food.
11

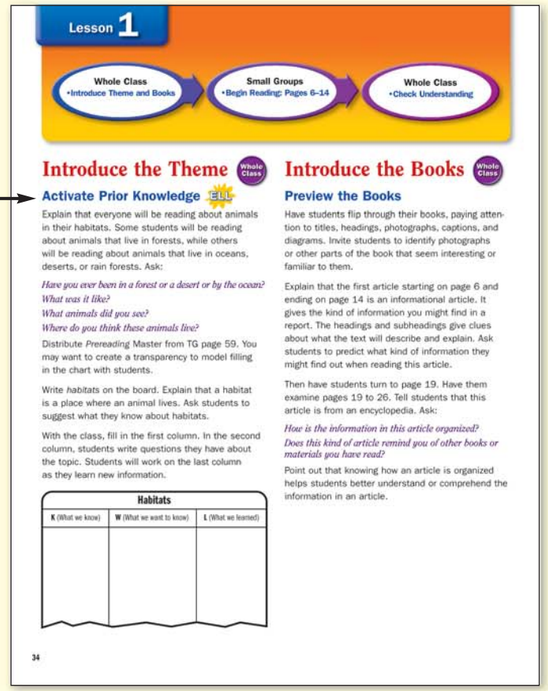
Scaffold the Instruction

Build background

Background knowledge for Key Concepts is carefully developed in the Student Books to ensure that students understand the big ideas.

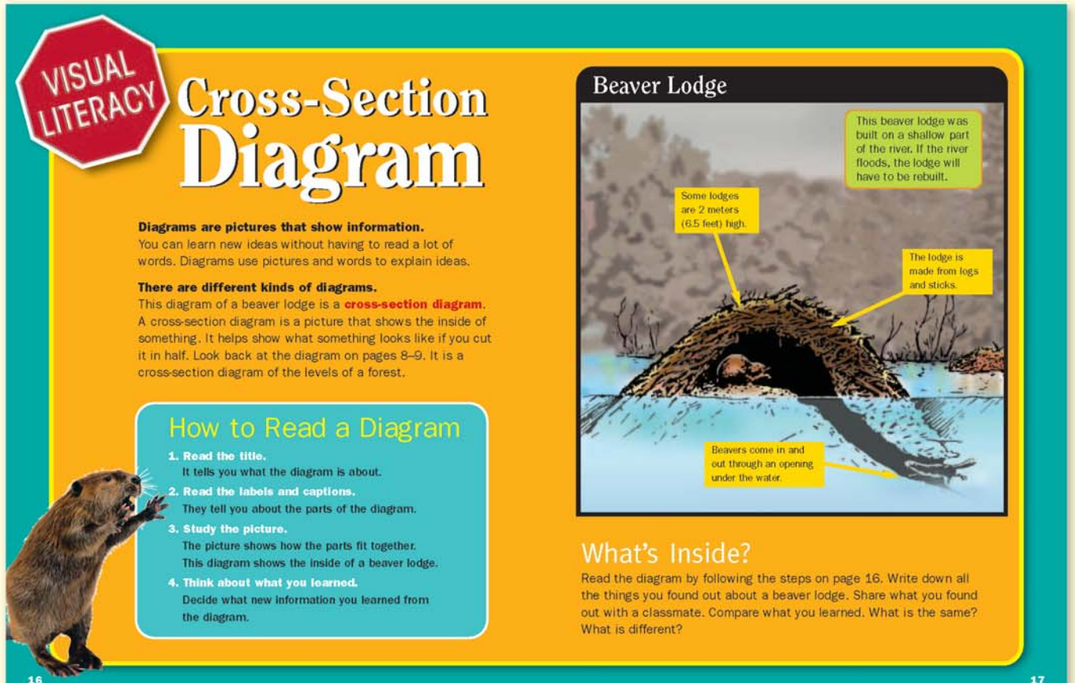
Activate prior knowledge

The lesson notes for each theme provide detailed suggestions for connecting what students already know to what they are learning.


Lesson 1
Whole Class • Introduce Theme and Books
Small Groups • Begin Reading: Pages 6–14
Whole Class • Check Understanding
Introduce the Theme
Activate Prior Knowledge
Explain that everyone will be reading about animals in their habitats. Some students will be reading about animals that live in forests, while others will be reading about animals that live in oceans, deserts, or rain forests. Ask:
Have you ever been in a forest or a desert or by the ocean?
What was it like?
What animals did you see?
Where do you think these animals live?
Distribute Prereading Master from TG page 59. You may want to create a transparency to model filling in the chart with students.
Write habitats on the board. Explain that a habitat is a place where an animal lives. Ask students to suggest what they know about habitats.
With the class, fill in the first column. In the second column, students write questions they have about the topic. Students will work on the last column as they learn new information.
Habitats
K (What we know)
W (What we want to know)
L (What we learned)
Introduce the Books
Preview the Books
Have students flip through their books, paying attention to titles, headings, photographs, captions, and diagrams. Invite students to identify photographs or other parts of the book that seem interesting or familiar to them.
Explain that the first article starting on page 6 and ending on page 14 is an informational article. It gives the kind of information you might find in a report. The headings and subheadings give clues about what the text will describe and explain. Ask students to predict what kind of information they might find out when reading this article.
Then have students turn to page 19. Have them examine pages 19 to 26. Tell students that this article is from an encyclopedia. Ask:
How is the information in this article organized?
Does this kind of article remind you of other books or materials you have read?
Point out that knowing how an article is organized helps students better understand or comprehend the information in an article.
34

Develop visual literacy skills

Lessons in visual literacy offer explicit instruction on how to understand and interpret information presented in diagrams, maps, charts, and other visuals.

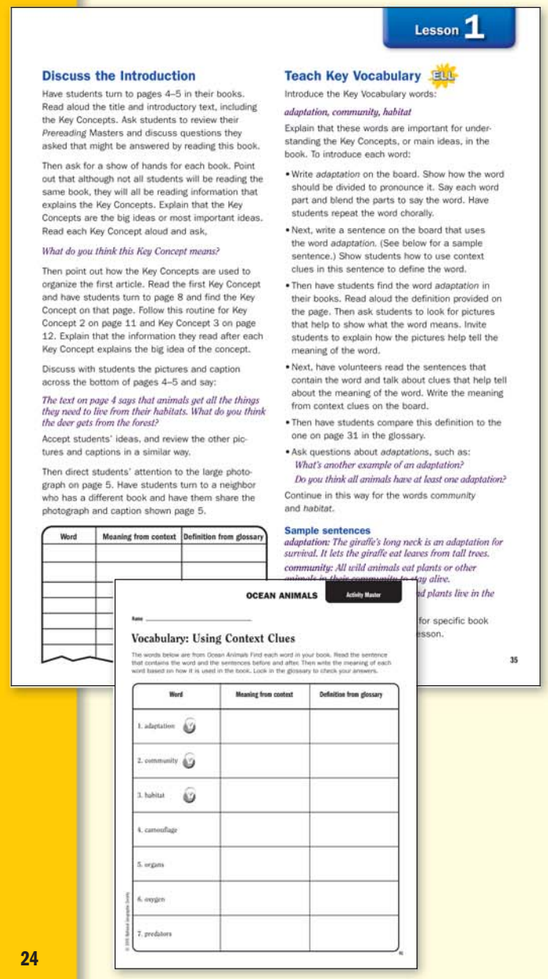

VISUAL LITERACY
Cross-Section Diagram
Diagrams are pictures that show information.
You can learn new ideas without having to read a lot of words. Diagrams use pictures and words to explain ideas.
There are different kinds of diagrams.
This diagram of a beaver lodge is a cross-section diagram. A cross-section diagram is a picture that shows the inside of something. It helps show what something looks like if you cut it in half. Look back at the diagram on pages 8–9. It is a cross-section diagram of the levels of a forest.
How to Read a Diagram
1. Read the title.
It tells you what the diagram is about.
2. Read the labels and captions.
They tell you about the parts of the diagram.
3. Study the picture.
The picture shows how the parts fit together.
This diagram shows the inside of a beaver lodge.
4. Think about what you learned.
Decide what new information you learned from the diagram.
Beaver Lodge
This beaver lodge was built on a shallow part of the river. If the river floods, the lodge will have to be rebuilt.
Some lodges are 2 meters (6.5 feet) high.
The lodge is made from logs and sticks.
Beavers come in and out through an opening under the water.
What's Inside?
Read the diagram by following the steps on page 16. Write down all the things you found out about a beaver lodge. Share what you found out with a classmate. Compare what you learned. What is the same? What is different?
16
17

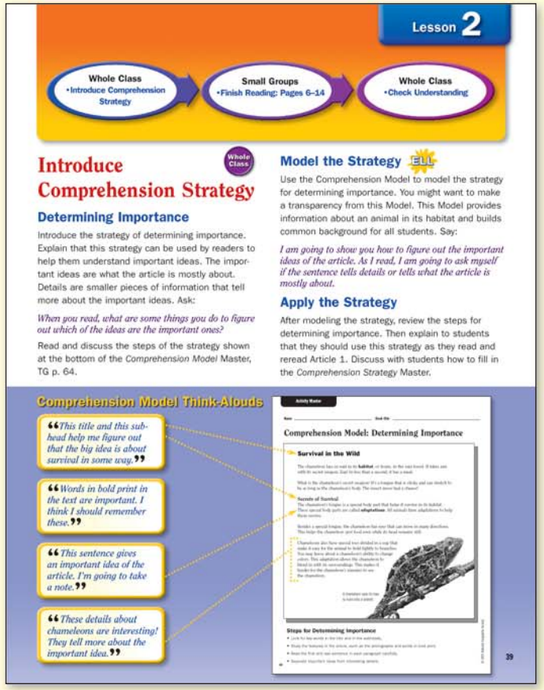
Supporting English Language Learners

Scaffold the Instruction

Teach comprehension strategies

The **Theme Sets** program helps students develop those learning strategies that empower students to become more independent and self-directed in their learning. Each theme provides explicit instruction and practice in one comprehension strategy. Graphic organizers help students use the strategy to understand the content.


Lesson 1
Discuss the Introduction
Have students turn to pages 4–5 in their books. Read aloud the title and introductory text, including the Key Concepts. Ask students to review their Prereading Masters and discuss questions they asked that might be answered by reading this book.
Then ask for a show of hands for each book. Point out that although not all students will be reading the same book, they will all be reading information that explains the Key Concepts. Explain that the Key Concepts are the big ideas or most important ideas. Read each Key Concept aloud and ask,
What do you think this Key Concept means?
Then point out how the Key Concepts are used to organize the first article. Read the first Key Concept and have students turn to page 8 and find the Key Concept on that page. Follow this routine for Key Concept 2 on page 11 and Key Concept 3 on page 12. Explain that the information they read after each Key Concept explains the big idea of the concept.
Discuss with students the pictures and caption across the bottom of pages 4–5 and say:
The text on page 4 says that animals get all the things they need to live from their habitats. What do you think the deer gets from the forest?
Accept students' ideas, and review the other pictures and captions in a similar way.
Then direct students' attention to the large photograph on page 5. Have students turn to a neighbor who has a different book and have them share the photograph and caption shown page 5.
Teach Key Vocabulary
Introduce the Key Vocabulary words:
adaptation, community, habitat
Explain that these words are important for understanding the Key Concepts, or main ideas, in the book. To introduce each word:
• Write adaptation on the board. Show how the word should be divided to pronounce it. Say each word part and blend the parts to say the word. Have students repeat the word chorally.
• Next, write a sentence on the board that uses the word adaptation. (See below for a sample sentence.) Show students how to use context clues in this sentence to define the word.
• Then have students find the word adaptation in their books. Read aloud the definition provided on the page. Then ask students to look for pictures that help to show what the word means. Invite students to explain how the pictures help tell the meaning of the word.
• Next, have volunteers read the sentences that contain the word and talk about clues that help tell about the meaning of the word. Write the meaning from context clues on the board.
• Then have students compare this definition to the one on page 31 in the glossary.
• Ask questions about adaptations, such as:
What's another example of an adaptation?
Do you think all animals have at least one adaptation?
Continue in this way for the words community and habitat.
Sample sentences
adaptation: The giraffe's long neck is an adaptation for survival. It lets the giraffe eat leaves from tall trees.
community: All wild animals eat plants or other
Word
Meaning from context
Definition from glossary
for specific book
esson.
35
OCEAN ANIMALS
Activity Master
Vocabulary: Using Context Clues
The words below are from Ocean Animals. Find each word in your book. Read the sentence that contains the word and the sentences before and after. Then write the meaning of each word based on how it is used in the book. Look in the glossary to check your answers.
Word
Meaning from context
Definition from glossary
1. adaptation
2. community
3. habitat
4. camouflage
5. organs
6. oxygen
7. predators


Lesson 2
Whole Class
•Introduce Comprehension Strategy
Small Groups
•Finish Reading: Pages 6–14
Whole Class
•Check Understanding
Introduce Comprehension Strategy
Whole Class
Determining Importance
Introduce the strategy of determining importance. Explain that this strategy can be used by readers to help them understand important ideas. The important ideas are what the article is mostly about. Details are smaller pieces of information that tell more about the important ideas. Ask:
When you read, what are some things you do to figure out which of the ideas are the important ones?
Read and discuss the steps of the strategy shown at the bottom of the Comprehension Model Master, TG p. 64.
Model the Strategy
Use the Comprehension Model to model the strategy for determining importance. You might want to make a transparency from this Model. This Model provides information about an animal in its habitat and builds common background for all students. Say:
I am going to show you how to figure out the important ideas of the article. As I read, I am going to ask myself if the sentence tells details or tells what the article is mostly about.
Apply the Strategy
After modeling the strategy, review the steps for determining importance. Then explain to students that they should use this strategy as they read and reread Article 1. Discuss with students how to fill in the Comprehension Strategy Master.
Comprehension Model Think-Alouds
"This title and this subhead help me figure out that the big idea is about survival in some way."
"Words in bold print in the text are important. I think I should remember these."
"This sentence gives an important idea of the article. I'm going to take a note."
"These details about chameleons are interesting! They tell more about the important idea."
Activity Master
Comprehension Model: Determining Importance
Survival in the Wild
Steps for Determining Importance
39

Focus on vocabulary

Rapid vocabulary acquisition is critical to academic success for English Language Learners. Not only do English Language Learners need to close the initial vocabulary gap with native speakers, but they must also keep pace with native speakers by steadily expanding their vocabularies. The **Theme Sets** program offers a rich array of instructional opportunities for English Language Learners to acquire academic vocabulary. These include:

Preteach Vocabulary Key Vocabulary is explicitly taught before reading.

Provide a Rich Context for Words New words are embedded in rich context to ensure that students develop a deeper understanding of these words.

Multiple Exposures and Opportunities to Use Words The text of the **Theme Sets** is carefully crafted to ensure repeated use of Key Vocabulary so students see words used in different contexts. Throughout the lessons, students are engaged in activities and games that provide rich opportunities to explore and use new vocabulary words.

Provide for Different Proficiency Levels

The English Language Learners in your class may be at different stages of acquiring English. In accommodating these stages, consider adjusting instruction to provide comprehensible input. Vary student response modes to ensure that all students can participate.

The following descriptions of language acquisition stages are summarized from *Sheltered Content Instruction: Teaching English-Language Learners with Diverse Abilities* by Jane Echevarria and Anne Graves (Boston: Allyn & Bacon, 2003), pages 15–19.

Preproduction Level	These students benefit from activities that build listening comprehension and receptive vocabulary while allowing them to respond through nonverbal means. They know almost no vocabulary in English. They communicate with gestures, actions, and a few words. They are building their receptive vocabulary and may experience a "silent period" as they attempt to process the tremendous amount of new information about language, culture, and school.
Early Production	These students benefit from lessons that continue to build vocabulary while encouraging them to produce previously learned language. Students can use one-word and two-word responses and chunks of language, drawing upon an English vocabulary of about 1,000 words. They can answer who, what, and where questions with brief responses, and can label and categorize information in English. They communicate more readily in English and may experience "adaptation fatigue" as their frustrations with the new language and culture come to a peak.
Speech Emergence	Students use language purposefully and produce complete sentences. They can successfully participate in English in small-group activities. They may feel continued frustration or experience relief as their knowledge base in English expands. They may actually make more errors as they experiment with more complex language patterns. They may feel conflicted about their cultural identity as they adjust to a new language and cultural environment. They benefit from activities that expand vocabulary and promote higher levels of language use.
Intermediate Fluency	Students can read and write in English and have strong conversational skills. They can produce connected narratives and respond to higher level questions, with errors that are usually in style or usage. They may lag behind in academic tasks, however, especially if they lack academic skills in the home language. They benefit from direct instruction of study skills and learning strategies and from strong contextual support for academic tasks.
Advanced Fluency	These students have become fluent speakers, readers, and writers of English. They can participate fully in classroom activities but may still have gaps in certain academic areas. They will benefit from explicit strategy instruction and continued affirmation of their home cultures.

Assessing Progress

Assessment provides teachers with valuable information to help plan instruction and measure progress over time. An assessment program needs to be ongoing so that changes over time in students' learning can be noted. An assessment program needs to include both formal and informal tools so that evaluation of performance is reliable and useful.

The **Theme Sets** program helps you informally assess student progress in both content-area knowledge and literacy development. The following informal assessment opportunities are built into each ***Theme Set***.

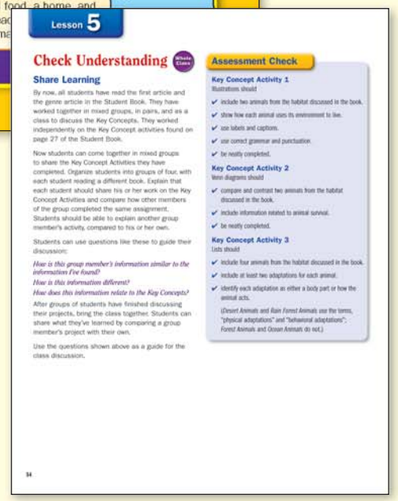
Student Book Assessment Tools

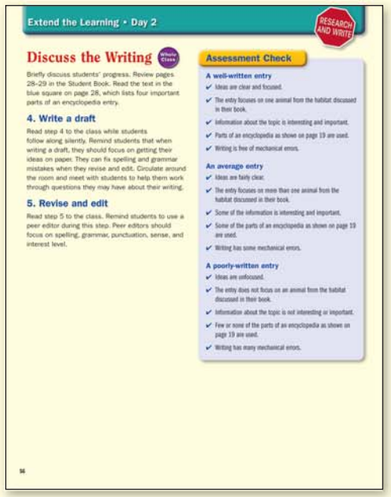
Apply the Key Concepts
Key Concept 1 Animals interact with their environment and with other animals in their habitats.
Activity
Choose two animals that live in the temperate forest. Draw a picture that shows how each animal does the following:
• finds food
• builds a home
• keeps safe
Use labels and captions to help explain your ideas.
beaver lodge
Key Concept 2 There are many different habitats on Earth. Animals live in habitats that meet their needs.
Activity
Choose two animals that live in the temperate forest. Find out how each of these animals uses plants to live. Then draw a Venn diagram to show what is the same and what is different.
owl
koala
Key Concept 3 Adaptations help animals survive in their habitats.
Activity
Choose four animals that live in the forest. Then list at least two adaptations each animal has to help it find food, a home, and protection. Tell whether each body part or how the animal
Forest Animals
1. Frog
2.

Think About Key Concept Questions At the end of the first informational article in each ***Theme Set***, a common set of questions taps into the students' knowledge of the three Key Concepts. The Teacher's Guide provides an Assessment Check and sample answers for the four books in each theme. See page 44–45.

Key Concept Activities At the end of the second article, in each ***Theme Set***, three activities provide opportunities for students to demonstrate their understanding of the Key Concepts. These activities tap into the various learning styles. The Teacher's Guide provides an Assessment Check to evaluate student products. See page 54.

Research and Write The writing activity that concludes each book allows students to demonstrate what they have learned about the content as well as produce a specific nonfiction writing form. A rubric for evaluating the writing is provided in the Assessment Check in the Teacher's Guide. See page 56.

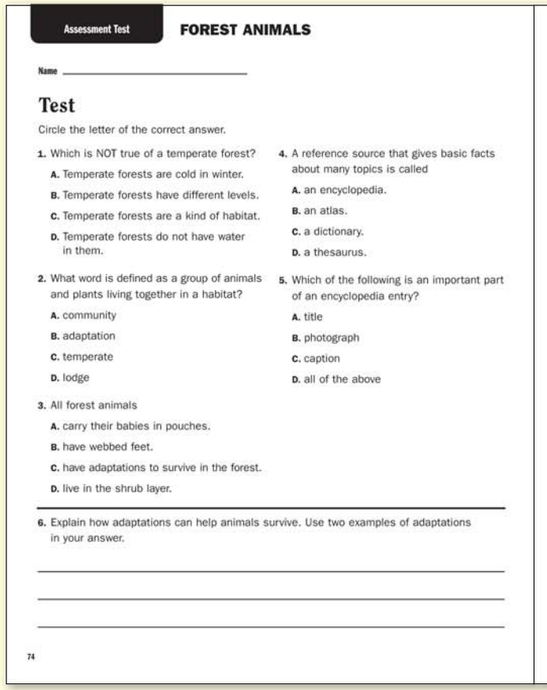


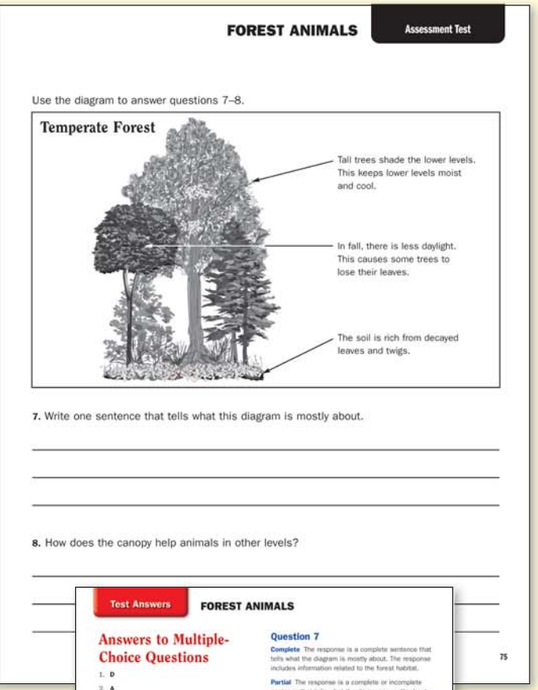


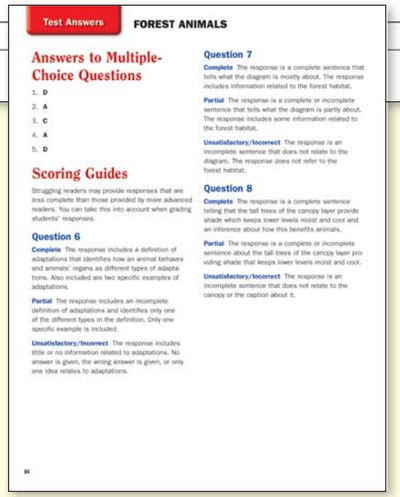
Teacher's Guide Assessment Tools

Open-Book Test In each Teacher's Guide, an Open-Book Test is provided as a blackline master. This test is constructed to help evaluate not only what students have learned but also how effectively students can reread to find specific information. A full answer key is provided for all four books in the theme. See pages 73, and 82–83.

Book Assessment Tests In each Teacher's Guide, a two-page test is provided for each title in the ***Theme Set***. These tests, provided as blackline masters, help to evaluate the content knowledge covered in the theme. The format of the test is similar to the National Assessment of Educational Progress (NAEP) test in that it includes multiple-choice questions, short-constructed responses, and long-constructed response. A Scoring Guide is provided for each test. See pages 74–81 and 84–87.


Assessment Test
FOREST ANIMALS
Name
Test
Circle the letter of the correct answer.
1. Which is NOT true of a temperate forest?
A. Temperate forests are cold in winter.
B. Temperate forests have different levels.
C. Temperate forests are a kind of habitat.
D. Temperate forests do not have water in them.
2. What word is defined as a group of animals and plants living together in a habitat?
A. community
B. adaptation
C. temperate
D. lodge
3. All forest animals
A. carry their babies in pouches.
B. have webbed feet.
C. have adaptations to survive in the forest.
D. live in the shrub layer.
4. A reference source that gives basic facts about many topics is called
A. an encyclopedia.
B. an atlas.
C. a dictionary.
D. a thesaurus.
5. Which of the following is an important part of an encyclopedia entry?
A. title
B. photograph
C. caption
D. all of the above
6. Explain how adaptations can help animals survive. Use two examples of adaptations in your answer.
74

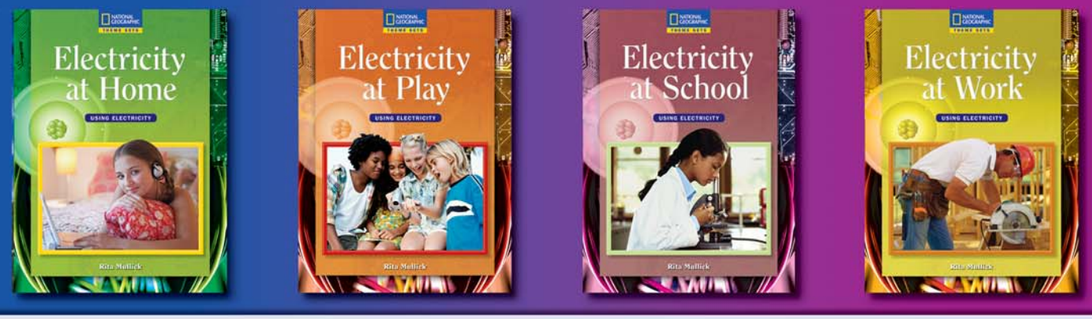

FOREST ANIMALS
Assessment Test
Use the diagram to answer questions 7–8.
Temperate Forest
Tall trees shade the lower levels. This keeps lower levels moist and cool.
In fall, there is less daylight. This causes some trees to lose their leaves.
The soil is rich from decayed leaves and twigs.
7. Write one sentence that tells what this diagram is mostly about.
8. How does the canopy help animals in other levels?
75



Extend Your Reading

For additional reading, National Geographic provides many related titles to support ***Using Electricity***. Students can use these books for independent reading, for research, or to extend their interest in the subject matter.

Related titles for *Using Electricity*



For Research and Further Reading

Windows on Literacy Fluent and Fluent Plus

Machines Make Fun Rides (Level 16)

Superdome (Level 21)

Reading Expeditions

Understanding Electricity (Fry 6.8, Lexile 840, Guided Reading Level X-Y)

Introduction to Energy (Fry 3.8, Lexile 600, Guided Reading Level Q-R)

The Mystery of Magnets (Fry 4.0, Lexile 630, Guided Reading Level Q-R)

Building Tiny Transistors (Fry 6.1, Lexile 630, Guided Reading Level W-X)

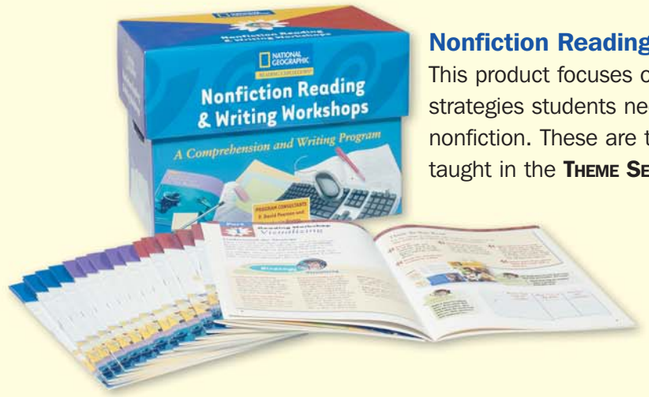
Reading Expeditions Language, Literacy, and Vocabulary

Electricity (Fry 3.6, Guided Reading Level Q-R)

For Reading and Writing Strategies Practice

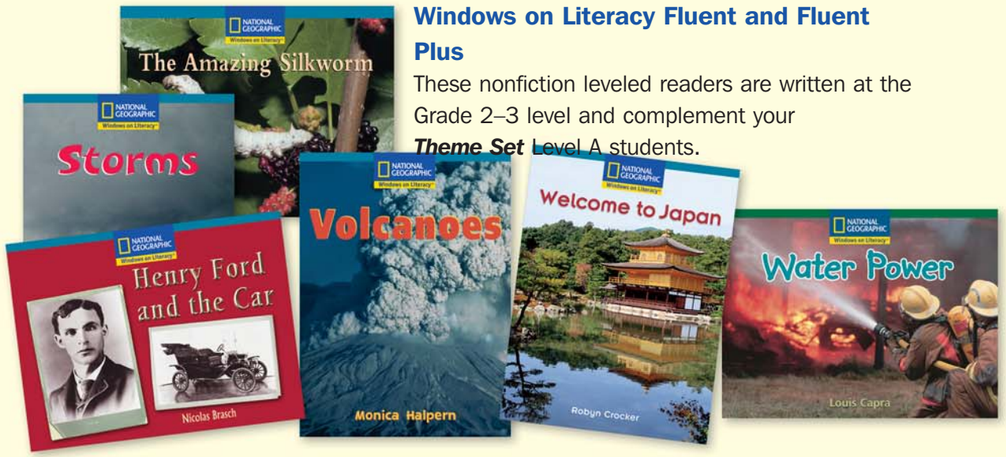
Nonfiction Reading and Writing Workshops

The comprehension strategy of asking questions is taught in *Using Electricity*. For additional instruction and practice, use the *Visualizing* titles in the Nonfiction Reading and Writing Workshops.



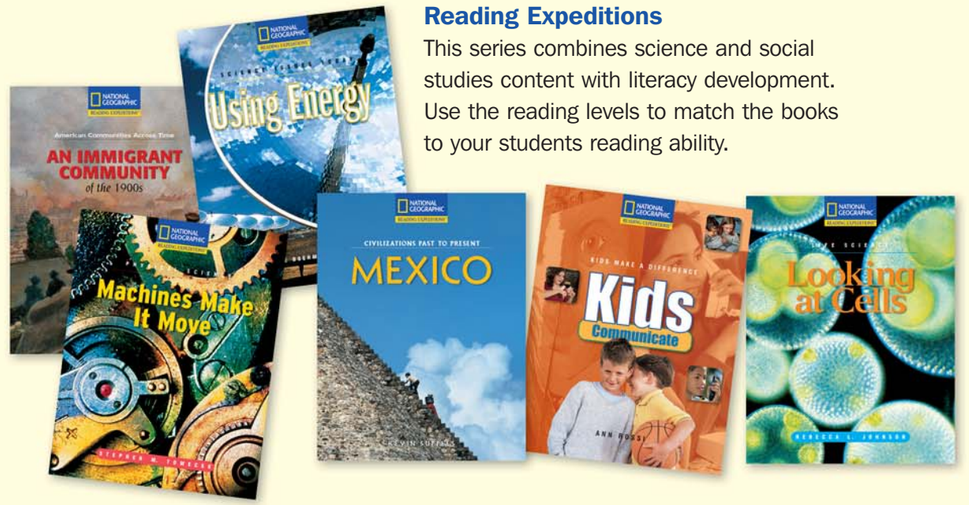
Nonfiction Reading and Writing Workshops

This product focuses on teaching the essential strategies students need to comprehend and write nonfiction. These are the same strategies that are taught in the **Theme Sets** program.



Windows on Literacy Fluent and Fluent Plus

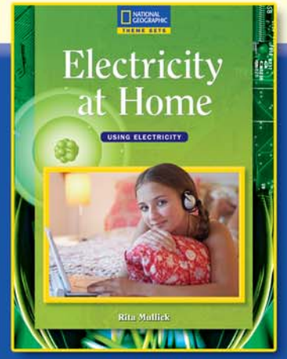
These nonfiction leveled readers are written at the Grade 2–3 level and complement your ***Theme Set*** Level A students.

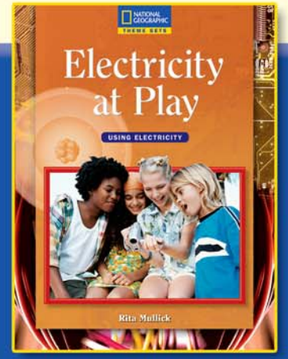


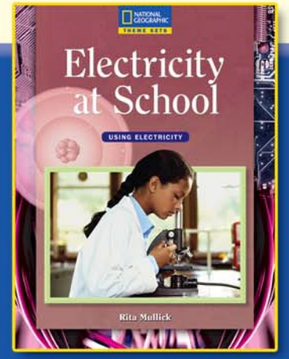
Reading Expeditions

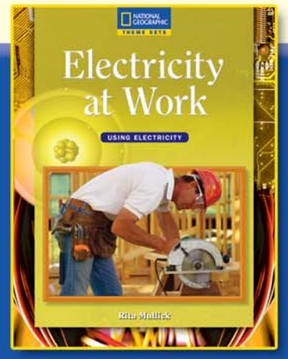
This series combines science and social studies content with literacy development. Use the reading levels to match the books to your students reading ability.

Using Electricity









Key Concepts

Same in all books

Key Concept 1: Electricity involves the movement of electrons.
Key Concept 2: An electric circuit is a path along which electrons can move.
Key Concept 3: Electric energy can change to heat, light, sound, and movement.

Key Vocabulary

Same in all books

circuit, electricity, electrons

Literacy Development

Same in all books

Comprehension Strategy Visualizing

Visual Literacy Flow Diagram
Genre Study How-to Books

Writing Activity
Write Your Own User Manual

Reading Levels

Varies from book to book

Least Challenging → **Most Challenging**

As text becomes more challenging:
- Vocabulary and text load increase
- Sentence structure and concepts become more complex

Book Vocabulary

Varies from book to book

Electricity at Home
atoms
conductors
electric current
electromagnet
filament
insulators
mechanical energy
resistance

Electricity at Play
atoms
conductors
electric current
electromagnet
element
filament
insulators
magnetism
mechanical energy
resistance

Electricity at School
atoms
conductors
electric charge
electric current
electromagnet
element
filament
insulators
magnetism
mechanical energy
resistance

Electricity at Work
atoms
conductors
electric charge
electric current
electromagnet
element
filament
insulators
mechanical energy
resistance
semiconductor

Theme Background

Using Electricity explains the ways we use electricity in four different places: at home, at play, at school, and at work. While each book focuses on the specific ways electricity is used in these places, the same key concepts are developed across books to help students focus on the big ideas.

The theme explores how electricity is created through the movement of electrons; how electrons move along a path, or circuit; and how electrical energy can change to other forms of energy as it is used. Students use the specific content and vocabulary within each book to discuss and examine these big ideas, or key concepts.

Each book in this theme includes two articles.

Article 1
Genre: Informational Article Informational articles present information that might be found in a report. Informational articles use headings, subheadings, photographs with labels or captions, boldface words, and diagrams.

Article 2
Genre: How-to Books How-to books give detailed step-by-step instructions for how to do or make something. Books such as these often use titles, subheads, labels, and diagrams to enhance the reader's understanding of the subject matter. This genre enhances students' understanding of how to use a machine that uses electricity.

Literacy Objectives

Article 1
Genre: Informational Article

Text features
- headings
- subheadings
- photographs
- captions
- diagrams

Article 2
Genre: How-to Books

Text features
- title
- subheads
- labels
- diagrams

Comprehension Strategy
Visualizing

Visual Literacy
Flow Diagram

Genre Study
How-to Books

Research and Write
Write Your Own User Manual

Correlation to National

Reading/Language Arts
- Read to be informed
- Apply a wide range of strategies to comprehend and interpret texts
- Use visual and written language to communicate effectively
- Use a variety of informational resources
- Conduct research

Science
- Light, heat, electricity, and magnetism (K–4)
- Transfer of energy (K–4)
- Science and technology (K–4)
- Scientific inquiry (K–4, 5–8)

Theme Overview

At a Glance Planner

See Pacing Guide suggestions on pages 12–13.

Pacing Guide	Student Edition Pages	Activity Masters
Lesson 1 • Activate prior knowledge • Preview the theme and books • Discuss Key Vocabulary • Begin reading the first article	***Using Electricity,*** pp. 4–5 **Informational Article,** pp. 6–16	**Prereading:** 3-Column Chart TG p. 59 **Vocabulary:** Concept Map TG pp. 60–63
Lesson 2 • Teach and apply the comprehension strategy • Finish reading the first article	**Informational Article,** pp. 6–16	**Comprehension Model:** Visualizing TG p. 64 **Comprehension Strategy:** Visualizing TG p. 65 **Prereading:** 3-Column Chart p. 59 **Word Cards:** *Electricity at Home* TG p. 66 **Word Cards:** *Electricity at Play* TG p. 67
Lesson 3 • Discuss and complete the Key Concept questions • Discuss Visual Literacy	**Think About the Key Concepts,** p. 17 **Visual Literacy:** Flow Diagram, pp. 18–19	**Key Concept Questions** TG p. 69
Lesson 4 • Discuss the Genre Study (How-to Books) • Begin reading the second article	**How-to Books** pp. 20–26	**Fluency Practice** TG p. 70 **Content Reading Guide** TG p. 71
Lesson 5 • Finish reading the second article • Begin Key Concept Activities	**How-to Books,** pp. 20–26 **Apply the Key Concepts,** p. 27	
Extend the Learning **Day 1** Research and Write **Day 2** Research and Write **Day 3** Sharing Your Work	**Research and Write,** pp. 28–29 **Sharing Your Work,** p. 30	**Prewriting** TG p. 72

Introduce the Theme

Whole Class

Activate Prior Knowledge

ELL

Explain that everyone will be reading about a different place where electricity is used. Some students will be reading about the electricity at home, while others will be reading about electricity at play, at school, or at work. Ask:

What are some ways you use electricity every day?

How does electricity help you do work?

How would you do these things differently without electricity?

Distribute the *Prereading* Master found in this Teacher's Guide, page 59. You may want to create a transparency to model filling in the Master with students.

Write *electricity* on the board. Explain that we use electricity in many ways every day. Ask students to suggest some ways they use electricity.

With the class, make a 3-column chart about electricity. In column 1, students can list things they use that run on electricity. In column 2, they can list how they use each thing. In column 3, students can tell where this thing is used (in the home, at school, etc.). Students can add to each column as they learn new information about the topics.

Thing that uses electricity	How it works	Where it is used

Introduce the Books

Whole Class

Preview the Books

Have students flip through their books, paying attention to titles, headings, pictures, captions, and diagrams. Invite students to identify photographs or other parts of the book that seem interesting or familiar to them.

Explain that the first article starting on page 6 and ending on page 16 is an informational article. It gives the kind of information you might find in a report. The headings and subheadings give clues about what the text will describe and explain. Ask students to predict what kind of information they might find out when reading this article.

Then have students turn to page 21. Have them examine pages 21 to 26. Tell students that this is a how-to book. Ask:

How is the information in this article organized?

Does this kind of article remind you of other books or materials you have read?

Point out that knowing how an article is organized helps students better understand the information in an article.

Discuss the Introduction

Have students turn to pages 4–5 in their books. Read aloud the title and introductory text, including the Key Concepts. Ask students to review their *Prereading* Masters and ask questions about electricity and the things they mentioned that might be answered by reading this book.

Then ask for a show of hands for each book. Point out that although not all students will be reading the same book, they all will be reading information that explains the Key Concepts. Explain that the Key Concepts are the big ideas or most important ideas. Read each Key Concept aloud and ask:

What do you think this Key Concept means?

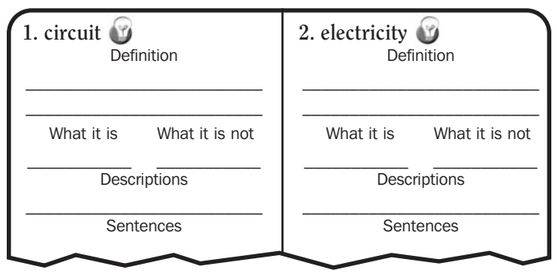
Then point out how the Key Concepts are used to organize the first article. Read the first Key Concept and have students turn to page 6 and find the Key Concept on that page. Follow this routine for Key Concept 2 on page 10 and Key Concept 3 on page 12. Explain that the information they read after each Key Concept explains the big idea of the concept.

Discuss with students the pictures and captions across the bottom of pages 4–5 and say:

The text on page 4 says people use electricity everywhere. What do you think are some ways electricity is used at home?

Accept students' ideas, and review the other pictures and captions in a similar way.

Then direct students' attention to the large photograph on page 5. Have students turn to a neighbor who has a different book and have them share the photograph and caption shown on page 5.



Teach Key Vocabulary

ELL

Introduce the Key Vocabulary words:

circuit, electricity, electrons

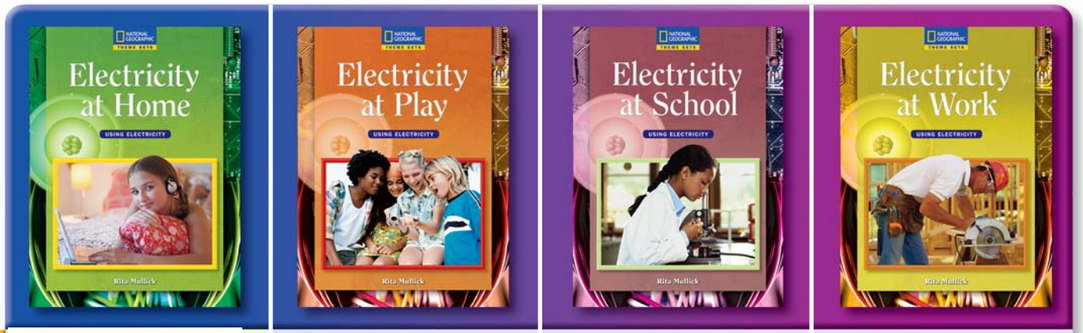
Explain that these words are important for understanding the Key Concepts, or main ideas, in the book. To introduce each word:

- Write *circuit* on the board. Show how the word should be divided to pronounce it. Say each word part and blend the parts to say the word. Have students repeat the word chorally.
- Have students skim the first article to find the word *circuit* in green print on page 10. Write *circuit* at the top of the board.
- Next, ask students to look up the word in the glossary on page 31 of their books and read the definition. Write the definition beneath the word.
- Have students hunt through their books to find words that are synonyms for the vocabulary word. Write these words on the left, beneath the definition. An example might be *loop.*
- Students can then look for examples of what the word is not. Write these words on the right beneath the definition. Some *nonexample* words might be *bulb,* and *light.*
- Next, have students look for words that describe the word *circuit* and write these words in the center under the two lists of what the word is and is not. Some describing words might be *flowing, powering, closed,* and *open.*
- Ask students to look for pictures in their books that help to show what the word means. Invite students to point to or explain which pictures help them understand the meaning of the word or relate to the word.
- Then, students can think of a sentence using the word *circuit.* Write this sentence at the bottom of the board.

Continue in this way for the words *electricity* and *electrons*. Students will use this concept map for specific book vocabulary words later in this Lesson.

Begin Reading: Pages 6–16

Small Groups



First Activity Block	With the Teacher **Begin Reading** • Introduce words difficult for students to read. • Introduce book vocabulary. • Begin reading the article in sections. • Check comprehension following each section.	*Pairs* **Vocabulary** Definition Chart To each student, distribute the *Electricity at Play Vocabulary* Master. Students can work in pairs to complete this Master.	*Pairs* **Vocabulary** Definition Chart To each student, distribute the *Electricity at School Vocabulary* Master. Students can work in pairs to complete this Master.	*Pairs* **Vocabulary** Definition Chart To each student, distribute the *Electricity at Work Vocabulary* Master. Students can work in pairs to complete this Master.
Second Activity Block	*Pairs* **Vocabulary** Concept Map To each student, distribute the *Electricity at Home Vocabulary* Master. Students can work in pairs to complete this Master.	With the Teacher **Begin Reading** • Introduce words difficult for students to read. • Introduce book vocabulary. • Begin reading the article in sections. • Check comprehension following each section.	*Individuals* **Independent Reading** Students begin reading *Using Electricity at School,* Student Book pages 6–16. Students can use their *Prereading* Master to add information and cross off misinformation. Students can write questions they may have on the back of the Master.	*Individuals* **Independent Reading** Students begin reading *Using Electricity at Work,* Student Book pages 6–16. Students can use their *Prereading* Master to add information and cross off misinformation. Students can write questions they may have on the back of the Master.

With the Teacher Small Groups ELL

Lesson Notes for *Electricity at Home*

Introduce difficult words

Identify four or five words in the section that may be difficult for students to read. These might include the Key Vocabulary words. Write the words and show students how to find parts of the words that they already know. Sound out the parts they do not know, and blend the parts together.

Introduce vocabulary

Introduce the book vocabulary words. (See the Teaching Notes on the inside front cover of the Student Books.) Use an approach similar to how you introduced the Key Vocabulary words. Have students read the word with you. Use the word in context and briefly discuss its meaning. Confirm the meaning by checking the glossary.

See pages 22–25 for strategies for ELL students.

Begin reading the article in sections

Point out that the article is divided into sections based on the Key Concepts. Have students read each section aloud. Students can read chorally or take turns. Be sure each student follows along when others read. Spend time reviewing the graphic elements (diagrams, illustrations, photographs). After each section, discuss the content and ask comprehension questions such as:

Key Concept 1

- *What are the parts of an atom?*
- *What is the difference between a conductor and an insulator?*

Key Concept 2

- *How does a circuit work?*

Key Concept 3

- *What is one way electricity is used at home?*
- *Explain one way that electrical energy can change.*

Encourage students to use vocabulary words in their responses.

With the Teacher Small Groups ELL

Lesson Notes for *Electricity at Play*

Introduce difficult words

Identify four or five words in the section that may be difficult for students to read. These might include the Key Vocabulary words. Write the words and show students how to find parts of the words that they already know. Sound out the parts they do not know, and blend the parts together.

Introduce vocabulary

Introduce the book vocabulary words. (See the Teaching Notes on the inside front cover of the Student Books.) Use an approach similar to how you introduced the Key Vocabulary words. Have students read the word with you. Check the glossary for the word's meaning. Then have volunteers offer words that describe the word and some nonexamples of the word.

See pages 22–25 for strategies for ELL students.

Begin reading the article in sections

Point out that the article is divided into sections based on the Key Concepts. Have students read each section aloud. Students can read chorally or take turns. Be sure each student follows along when others read. Spend time reviewing the graphic elements (diagrams, illustrations, photographs). After each section, discuss the content and ask comprehension questions such as:

Key Concept 1

- *What are the parts of an atom?*
- *What is the difference between a conductor and an insulator?*

Key Concept 2

- *How does a circuit work?*

Key Concept 3

- *What is one way electricity is used at play?*
- *Explain one way that electrical energy can change.*

Encourage students to use vocabulary words in their responses.

Lesson 1

Check Understanding

Whole Class

Share Learning

By now, all students have read most of the informational article, either independently or in small groups with the teacher.

Bring the class together, and have students share what they learned from the books in this theme. Ask:

Where is electricity used in the book you read?
How is electricity used there?
What are the big ideas in the article?

Discuss the Key Concepts

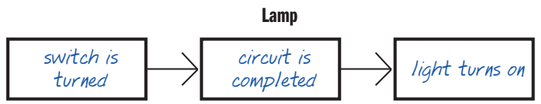
ELL

Students reading different books can explain how the Key Concepts apply to the individual topics. With examples about specific places where electricity is used, students can begin to see how the same big ideas apply to electricity in general.

Review the Key Concepts with the class using a flow diagram graphic organizer. Ask a volunteer to say what he or she knows about how electricity is used in the place he or she read about in the informational article. On the board, write the name of something that uses electricity. Ask the class:

How does electricity make this thing work?
What has to happen for this thing to work?

Continue in this way until the questions are answered for each of the four titles. Help students make connections to the big ideas among titles.



Sample diagram for Electricity at Home

Revisit the *Prereading* Master

Now that students have read most of Article 1, have them revisit the *Prereading* Master they began at the beginning of the Lesson. Students can work in pairs or independently to compare what they have written and to get new ideas to add to their charts.

Lesson 2

Whole Class
•Introduce the Comprehension Strategy

Small Groups
•Finish Reading: Pages 6–16

Whole Class
•Check Understanding

Introduce Comprehension Strategy

Whole Class

Visualizing

Introduce the strategy of visualizing. Explain that readers can use this strategy to help them get a mental picture of what they are reading. Visualizing the text will make the reading easier to understand. Ask:

When you read something, do you get a picture in your mind of what you are reading?

Read and discuss the steps of the strategy shown at the bottom of the *Comprehension Model* Master, TG p. 64.

Model the Strategy

ELL

Use the Comprehension Model to model the strategy for visualizing. You might want to make a transparency from this Model. This Model provides information about electricity and builds common background for all students. Say:

I am going to show you how to visualize what you are reading. As I read, I am going to stop and think aloud about the picture I see in my mind.

Apply the Strategy

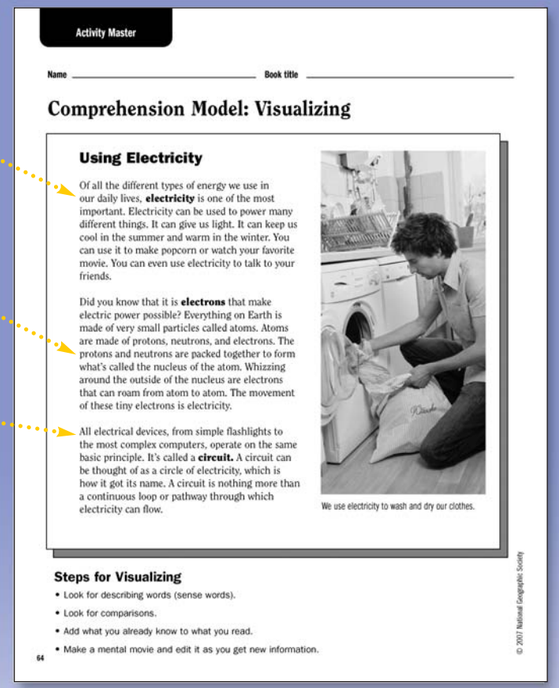
After modeling the strategy, review the steps for visualizing. Then explain to students that they should use this strategy as they read and reread Article 1. Discuss with students how to fill in the *Comprehension Strategy* Master.

Comprehension Model Think-Alouds

"*This sentence helps me visualize some of the electrical appliances I use, such as an air conditioner and a microwave.*"

"*The word 'whizzing' helps me visualize the way the electrons are moving in the atom.*"

"*I had imagined that electricity went in one direction, but from this sentence, I can visualize how a circuit works. It is like a continuous circle with electricity flowing around it.*"



Activity Master

Name _____ Book title _____

Comprehension Model: Visualizing

Using Electricity

Of all the different types of energy we use in our daily lives, **electricity** is one of the most important. Electricity can be used to power many different things. It can give us light. It can keep us cool in the summer and warm in the winter. You can use it to make popcorn or watch your favorite movie. You can even use electricity to talk to your friends.

Did you know that it is **electrons** that make electric power possible? Everything on Earth is made of very small particles called atoms. Atoms are made of protons, neutrons, and electrons. The protons and neutrons are packed together to form what's called the nucleus of the atom. Whizzing around the outside of the nucleus are electrons that can roam from atom to atom. The movement of these tiny electrons is electricity.

All electrical devices, from simple flashlights to the most complex computers, operate on the same basic principle. It's called a **circuit.** A circuit can be thought of as a circle of electricity, which is how it got its name. A circuit is nothing more than a continuous loop or pathway through which electricity can flow.

We use electricity to wash and dry our clothes.

Steps for Visualizing

- Look for describing words (sense words).
- Look for comparisons.
- Add what you already know to what you read.
- Make a mental movie and edit it as you get new information.

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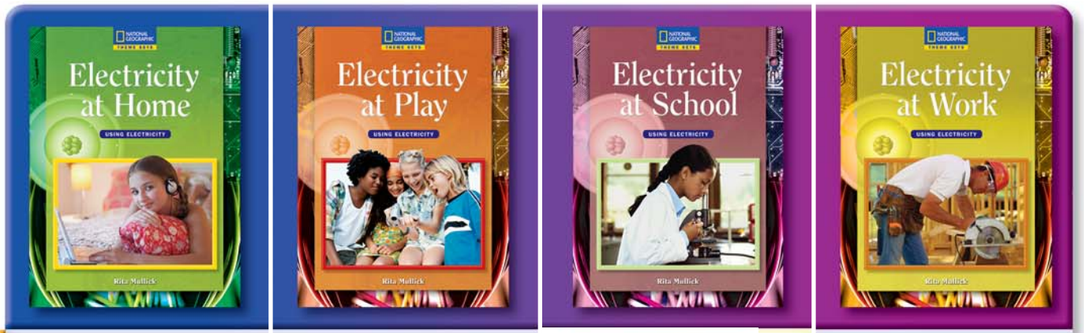
Finish Reading: Pages 6–16 Small Groups



		With the Teacher	
First Activity Block	*Pairs* **Word Card Activity** Pairs of students reading *Electricity at Home* can use the word cards found on page 66 of this Teacher's Guide to play "Vocabulary Go Fish" to practice reading the words and saying the definitions. Using these word cards, students gain experience using Key Vocabulary words and vocabulary words from *Electricity at Home.*	*Pairs* **Finish Reading/Reread** Students can work with a partner to finish reading *Using Electricity at Play,* Student Book pages 6–16. Students then reread the article with a partner and complete the *Comprehension Strategy* Master.	**Discuss Reading** • Review vocabulary. • Discuss the article. • Discuss comprehension questions.	*Individuals* **Finish Reading/Reread** Students finish reading *Using Electricity at Work,* Student Book pages 6–16. Students then reread the article and complete the *Comprehension Strategy* Master.
Second Activity Block	*Pairs* **Finish Reading/Reread** Students can work with a partner to finish reading *Using Electricity at Home,* Student Book pages 6–16. Students then reread the article with a partner and complete the *Comprehension Strategy* Master.	*Pairs* **Word Card Activity** Pairs of students reading *Electricity at Play* can use the word cards found on page 67 of this Teacher's Guide to play "Vocabulary Go Fish" to practice reading the words and saying the definitions. Using these word cards, students gain experience using Key Vocabulary words and vocabulary words from *Electricity at Play.*	*Individuals* **Finish Reading/Reread** Students finish reading *Using Electricity at School*, Student Book pages 6–16. Students then reread the article and complete the *Comprehension Strategy* Master.	With the Teacher **Discuss Reading** • Review vocabulary. • Discuss the article. • Discuss comprehension questions.

With the Teacher Small Groups ELL

Lesson Notes for *Electricity at School*

Review vocabulary

Before discussing the article, review any troublesome words with students. First, have students identify words they found difficult to pronounce or to understand.

Then have students turn to the glossary on page 31. Review these words with students, pronouncing them and discussing meanings.

See pages 22–25 for strategies for ELL students.

Discuss the informational article

Ask questions such as:

What do you think this article is mostly about?
What information was new or most interesting?
Were you surprised by anything you learned?

Briefly discuss students' responses to the article.

Discuss comprehension questions

After discussing students' responses to the article, discuss the following specific content questions. For each question, have students support their answers by reading relevant sections from the text.

Key Concept 1

- *What are the parts of an atom?*
- *What is the difference between a conductor and an insulator?*

Key Concept 2

- *How does a circuit work?*

Key Concept 3

- *What is one way electricity is used in school?*
- *Explain one way that electrical energy can change.*

With the Teacher Small Groups ELL

Lesson Notes for *Electricity at Work*

Review vocabulary

Before discussing the article, review any troublesome words with students. First, have students identify words they found difficult to pronounce or to understand.

Then have students turn to the glossary on page 31. Review these words with students, pronouncing them and discussing meanings.

See pages 22–25 for strategies for ELL students.

Discuss the informational article

Ask questions such as:

What do you think this article is mostly about?
What information was new or most interesting?
Were you surprised by anything you learned?

Briefly discuss students' responses to the article.

Discuss comprehension questions

After discussing students' responses to the article, discuss the following specific content questions. For each question, have students support their answers by reading relevant sections from the text.

Key Concept 1

- *What are the parts of an atom?*
- *What is the difference between a conductor and an insulator?*

Key Concept 2

- *How does a circuit work?*

Key Concept 3

- *What is one way electricity is used at work?*
- *Explain one way that electrical energy can change.*

Check Understanding

Whole Class

Review the Comprehension Strategy

Remind students that when they read, they use different strategies to help them better understand what they read. Review with them the strategy of visualizing.

- **Look for describing words (sense words).**
- **Look for comparisons.**
- **Add what you already know to what you read.**
- **Make a mental movie and edit it as you get new information.**

Select a sample passage from one of the four books. Model thinking aloud as you read the passage. You could also reuse the *Comprehension Model* Master.

Then review with the class their completed *Comprehension Strategy* Master. To begin, have students work in pairs. Suggest that students review their *Comprehension Strategy* Master notes and select one example of a visualization they made. Ask them to read aloud to their partners the passage that contains the text they used to visualize.

After students have practiced thinking aloud to visualize, ask volunteers to model this process for the class. Be sure to include students who are reading each of the four books.

Comprehension Strategy Tips

Collect ideas about how students can use the comprehension strategy of visualizing in their reading. Record their ideas on chart paper and post the chart so that students can refer to it when they read other informational articles of this kind. Leave some space at the bottom for additional tips as they come up.

Here is a list of tips that the class might include.

Visualizing

- **Look for describing words that let you know how things look, feel, sound, smell, and taste.**
- **Check out the illustrations and pictures to get started with your own mental pictures.**
- **Think how you would feel if you were in the book you are reading.**
- **Look for comparisons the author makes to things you know.**
- **Keep changing the pictures in your mind as**

Whole Class
•Share Learning

Whole Class
•Think About Key Concept Questions

Whole Class
•Visual Literacy

Share Learning

Whole Class

Review the Key Concepts with the class. Remind students that they have all read an article about electricity and they have all read about the same Key Concepts. Explain that now students can share what they have learned from their books. Say:

First, we will work in small groups to discuss what we learned about how electricity is used in different places. Then we will come together again to share what we learned with the class.

Next, distribute the *Share Learning* Master found on page 68 of this Teacher's Guide. Then organize students into groups of four, with each student reading a different book. Explain that each student is the group's "expert" on his or her book's information. Group members then complete this Master together, as each student contributes ideas to complete the chart.

After groups of students have completed their charts, bring the class together to create a class chart on the board. Students can share what they've learned from their own books as well as from other students in their group. Ask questions to help students make connections to the big ideas among titles.

Assessment Check

Students should conclude that

- ✔ electricity is used in many places.
- ✔ there are many ways that electricity is used.
- ✔ electricity needs a circuit.
- ✔ electric energy can be changed to other types of energy.

Place where electricity is used	Ways electricity is used in this place	Example of electric circuit in this place	How electric energy changes
at home	keep food cold, cook food, light a room	lamp: power supply to switch to bulb to power supply	becomes heat energy in a toaster, light energy in a light bulb, sound energy in a doorbell, mechanical energy in a washing machine
at play	run a computer, amusement park rides, video games	toy train: power source to switch to motor to power source	becomes heat energy in a pool, light energy in a computer, sound energy in a game show buzzer, mechanical energy in a Ferris wheel
at school	run an overhead projector, fish tank, computer	floodlights: power source to switch to floodlights to power source	becomes heat energy in a hand dryer, light energy in an overhead projector, sound energy in a school bell, mechanical energy in a fan
at work	run forklifts, computers, telephones	security system: power source to electro-magnet to switch to alarm to power source	becomes heat energy in a furnace, light energy in a digital clock, sound energy in a telephone, mechanical energy in a sewing machine

Sample answers for one group of students

Think About Key Concept Questions

Whole Class

Have students turn to page 17 in their Student Books. On this page, all students will find the same four questions relating to the Key Concept statements.

Think About the Key Concepts

1. **What is electricity? What do electrons have to do with electricity?**
2. **How are conductors and insulators used together?**
3. **What does a switch do in an electric circuit?**
4. **What other forms of energy can electric energy change to?**

Read the questions to the class, making sure that students understand each question. You might ask volunteers to rephrase the questions in their own words, or you might rephrase the questions for students.

Share Learning

Explain to students that they will complete the *Key Concept Questions* Master independently. Then students will come together as a class to share what they have learned. Say:

You have each read an article about how electricity is used in a place. Not everyone has read the same book, but all books have the same Key Concepts. Now, as you complete the Key Concept Questions *Master, think about what you've learned from reading.*

When we come together as a class to discuss the completed Key Concept Questions *Masters, you can compare what you have learned to what others have learned about how electricity is used in a place.*

Review the *Key Concept Questions* Master with students, answering any questions they may have.

Assessment Check

Students should address these main ideas in their responses to the Key Concept questions:

1. Electricity is the energy of moving electrons. The movement of electrons is necessary for there to be electricity.
2. Conductors, such as wires, move electricity. Insulators are used to cover the wires to protect people from the electrical energy.
3. The switch controls the flow of electrical current. It makes it possible to open and close an electrical circuit.
4. Electrical energy can change to heat, light, sound, or mechanical energy.

Possible Responses to Key Concept Questions

Electricity at Home	Electricity at Play	Electricity at School	Electricity at Work
1. What is electricity? What do electrons have to do with electricity?			
Electricity is the energy of moving electrons. When electrons move, they create electric energy.	*Electricity is the energy of moving electrons. When electrons move, they create an electric current that carries energy. This energy is electricity.*	*Electricity is the energy of moving electrons. Moving electrons create an electric current that carries the energy of moving electrons. This energy is electricity.*	*Electricity is the energy of moving electrons. Moving electrons create an electric current that carries the energy of moving electrons. This energy is electricity.*
2. How are conductors and insulators used together?			
Electricity moves through conductors. Insulators cover the conductors to protect people from the electrical energy.	*Electricity moves through conductors, such as wires. Insulators, such as plastic or rubber, cover the conductors to protect people from the electrical energy.*	*Conductors allow the flow of electricity. Insulators do not. An electrical cord has a metal wire covered in plastic. The wire is a conductor, and the plastic is an insulator.*	*Conductors let electrons move easily in a current to conduct electricity. Insulators do not let electrons move easily. An electrical cord has a metal wire covered in plastic. The wire is a conductor, and the plastic is an insulator.*
3. What does a switch do in an electric circuit?			
A switch opens and closes an electrical circuit.	*A switch opens and closes an electrical circuit.*	*A switch controls the flow of electrical current. It opens and closes the circuit.*	*A switch controls the flow of electrical current. It opens and closes the circuit.*
4. What other forms of energy can electric energy change to?			
Electrical energy can change to heat, light, sound, or mechanical energy.	*Electrical energy can change to heat, light, sound, or mechanical energy.*	*Electrical energy can change to heat, light, sound, or mechanical energy.*	*Electrical energy can change to heat, light, sound, or mechanical energy.*

Lesson 3

Visual Literacy

Whole Class

Flow Diagram

Have students turn to page 18 in their books. In all books, this page contains the same information about flow diagrams, except that the topic of each diagram is specific to each book. Say:

I am going to read pages 18 and 19 from the Electricity at Home *book. This book shows a flow diagram of how electricity moves from the power station to the home. Since you are not all reading the same book, you do not have the same flow diagram on this page. But the information about flow diagrams is the same.*

After reading the top half of page 18, review the definition of a flow diagram.

Then read the four steps in the box at the bottom of page 18. After reading the text in the box, have students look back at the diagram on page 16 of their books. Say:

While you are looking at the flow diagram in your specific book, I'm going to look at page 16 in the Electricity at Home *book. We've all seen these flow diagrams already, since we've all read this article. Let's look at these flow diagrams a little more closely now.*

Model the process of reading the diagram on page 16 in the *Electricity at Home* book. Focus on the title, the captions, and how the diagram shows the steps as electrical energy changes to mechanical energy.

Discuss how using flow diagrams like these can help students learn new ideas without having to read a lot of words. Ask questions such as:

What is one big idea you can learn from the diagram in your book without reading the words?

Have at least one student reading each of the books suggest answers.

Next, have students turn back to pages 18 and 19 in their books. Reread the four steps in the box at the bottom of page 18. As you read each step to the class, use the diagram on page 19 as a model. Continue to use examples from the *Electricity at Home* book, but ask volunteers reading other books to offer similar information. For example:

1. Read the title.
Say: *The title tells me what the diagram is about. The title,* From the Power Station to the Home*, means this diagram is mostly about how electricity gets from the power station to the home.*

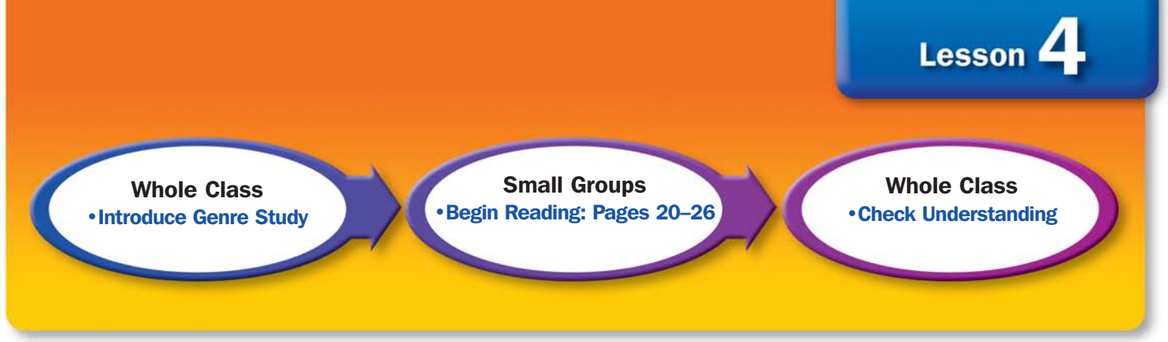
2. Read the labels or captions.
Say: *These labels give me information about the pictures. For example, the label for the factory tells me what the building is.*

3. Study the pictures.
Say: *By carefully reviewing this diagram, I can learn about the steps for carrying electricity to the home. For example, I can see that electricity goes to a substation before it gets to a home.*

4. Think about what you learned.
Say: *I learned many things I did not already know. For example, I didn't know that electricity is generated at a power station.*

Read the text at the bottom of page 19. Give students five minutes to write ideas they have about the diagram. Then have a brief class discussion about students' ideas related to the diagram.

Lesson 4



Introduce the Genre Study

Whole Class

How-to Books

Explain to students that authors have varied purposes for writing. Authors can choose the writing form that best suits their purpose for writing. These different forms of writing are called genres. Say:

Writers use different forms, or genres, depending on their purpose for writing. Today we are going to learn about a genre, or type of writing, called how-to books.

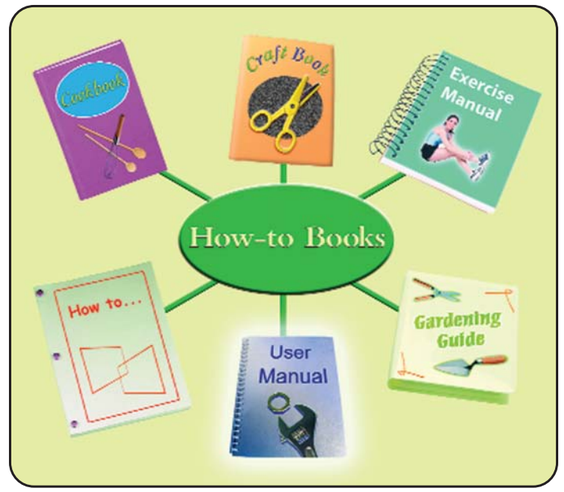
Then have students turn to page 20 of their books. Read page 20 to the class. Say:

Look at this diagram. It shows six different types of how-to books. Each of these how-to books can be used for different purposes. We may already know that a cookbook can be used to find recipes. But why might you use a user manual?

Next, have students turn to page 21. Explain to students that they will be reading a how-to book called a user manual.

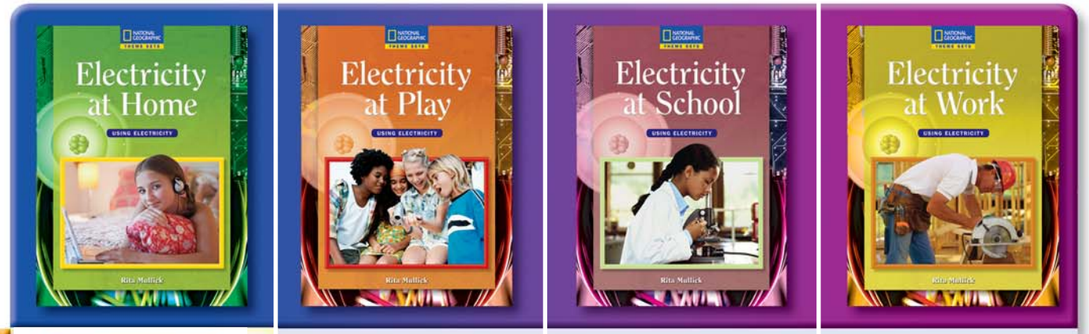
Then read and discuss the different labels shown on page 21 that identify and describe some parts of a user manual.

Remind students that how-to books are organized with the title, subheads, labels, diagrams, and important information.



Begin Reading: Pages 21–26

Small Groups



First Activity Block

With the Teacher

Begin Reading

- Review the genre.
- Model using the genre article.
- Read parts of the genre article.

Pairs

Fluency Practice

Students reading *Electricity at Play* pair up with students reading *Electricity at Work.* Students reread aloud parts of Article 1 from their own books to practice reading fluency. To each pair, distribute the *Fluency Practice* Master on page 70 of this Teacher's Guide.

Individuals

Independent Reading

Students read *Overhead Projector User Manual,* Student Book pages 21–26.

To each student, distribute the *Content Reading Guide* Master, page 71 in this Teacher's Guide. Students should use the Master to take notes as they read for specific information.

Pairs

Fluency Practice

Students reading *Electricity at Work* pair up with students reading *Electricity at Play.* Students reread aloud parts of Article 1 from their own books to practice reading fluency. To each pair, distribute the *Fluency Practice* Master on page 70 of this Teacher's Guide.

Second Activity Block

Pairs

Fluency Practice

Students reading *Electricity at Home* pair up with students reading *Electricity at School.* Students reread aloud parts of Article 1 from their own books to practice reading fluency. To each pair, distribute the *Fluency Practice* Master on page 70 of this Teacher's Guide.

With the Teacher

Begin Reading

- Review the genre.
- Model using the genre article.
- Read parts of the genre article.

Pairs

Fluency Practice

Students reading *Electricity at School* pair up with students reading *Electricity at Home.* Students reread aloud parts of Article 1 from their own books to practice reading fluency. To each pair, distribute the *Fluency Practice* Master on page 70 of this Teacher's Guide.

Individuals

Independent Reading

Students read *Forklift User Manual,* Student Book pages 21–26.

To each student, distribute the *Content Reading Guide* Master, page 71 in this Teacher's Guide. Students should use the Master to take notes as they read for specific information.

With the Teacher | Small Groups | ELL

Lesson Notes for *Electricity at Home*

Model reading a how-to book

Ask students when they would use how-to books. Discuss the parts of a how-to book. Model reading the information on pages 21–22. Distribute the *Content Reading Guide* Master, which students can use to guide them through reading their user manual. Say:

We've just learned about how people use electricity at home. Now I'm going to read about how to use an electrical appliance called a toaster.

Begin reading the user manual. Use the labels to describe the parts. Also point out the important features. For example:

The first picture of the toaster has numbered circles on it. These numbers match the numbers listed on the left. By matching the numbers, I can see the name of each part.

Continue making observations about the user manual that will help students draw conclusions about the important features of a how-to book.

Read parts of the user manual

Have students flip through the user manual. Have them notice the illustrations, subheads, and bulleted lists. Say:

We are going to take turns reading information in this user manual.

Before each student reads, reread the title and introduction. Skim the text to point out any words that may be unfamiliar to the reader. Pronounce these words and discuss their meanings. Then have students read chorally or take turns reading the user manual. After students have finished reading, say:

We've just read a user manual about how to use a toaster. Now let's reread to find the important features of a user manual. This will help us make sure that we've understood what we have read.

Have students read the user manual again and point out the important features of a user manual.

With the Teacher | Small Groups | ELL

Lesson Notes for *Electricity at Play*

Model reading a how-to book

Ask students when they would use how-to books. Discuss the parts of a how-to book. Model reading the information on pages 21–22. Distribute the *Content Reading Guide* Master, which students can use to guide them through reading their user manual. Say:

We've just learned about how people use electricity at play. Now I'm going to read about how to use an electrical device called a DVD player.

Begin reading the user manual. Use the labels to describe the parts. Also point out the important features. For example:

The first picture of the DVD player has numbered circles on it. These numbers match the numbers listed on the left. By matching the numbers, I can see the name of each part.

Continue making observations about the user manual that will help students draw conclusions about the important features of a how-to book.

Read parts of the user manual

Have students flip through the user manual. Have them notice the illustrations, subheads, and bulleted lists. Say:

We are going to take turns reading information in this user manual.

Before each student reads, reread the title and introduction. Skim the text to point out any words that may be unfamiliar to the reader. Pronounce these words and discuss their meanings. Then have students read chorally or take turns reading the user manual. After students have finished reading, say:

We've just read a user manual about how to use a DVD player. Now let's reread to find the important features of a user manual. This will help us make sure that we've understood what we have read.

Have students read the user manual again and point out the important features of a user manual.

Lesson 4

Check Understanding

Whole Class

Discuss the Genre

Talk with students about how different types of writing, or genres, have different purposes. Ask:

What is the main reason you would read a how-to book? (to get directions for how to do or make something)

Then review the parts of a how-to book. Ask questions such as:

What are the parts of a how-to book?

What does the title tell you?

Why are the diagrams important?

Ask volunteers to share one thing they learned from the user manual they read. What was most interesting?

Share Learning

Have small groups of students share their books. Organize students into groups of four, with each student reading a different book.

Have each student walk through their user manual with group members, pointing out the diagrams, subheads, labels, and interesting content.

Then each student should explain in his or her own words something that was interesting from the user manuals.

Read for Specific Information

Bring the class together to create a class chart, using information from the user manuals and students' *Content Reading Guides.* Students can suggest information found in their own books or from a classmate's book. Use at least one example from each user manual.

After completing the chart, ask questions about the genre such as:

When reading the user manuals, was it easy to find important information?

How are the user manuals similar? How are they different?

Content Reading Guide

Topic	Important features	Things to consider
toaster	parts of the toaster, safety precautions, setting up and using the toaster	The browning control can be set lower or higher.
DVD player	parts of the DVD player, safety precautions, using and caring for the DVD player	Do not put the machine or the cord in water.
overhead projector	parts of an overhead projector, safety precautions, setting up and using the overhead projector	If the bulb burns out, it can be replaced.
forklift truck	parts of a forklift truck, safety precautions, operating and caring for the forklift truck	A forklift truck should never be left on a sloping surface.

Partially completed class chart

Lesson 5

Whole Class
•Introduce Key Concept Activities

Small Groups
•Finish Reading: Pages 20–26

Whole Class
•Check Understanding

Introduce Key Concept Activities

Whole Class ELL

Have students turn to page 27 in their books. Read the title of the page and point out that there is one activity for each Key Concept statement.

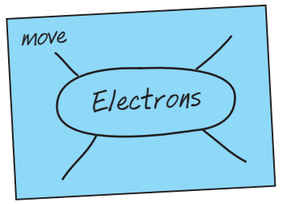
Summarize each activity, and make sure students understand what the product of each activity should be (a concept web, a drawing, and a paragraph). Use the art next to each activity to aid in the discussion. Remind students that they can use information from the informational and genre articles to complete each activity.

Assigning the Activities

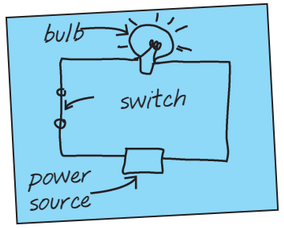
During Lesson 5, students can work in pairs or small groups as they begin working on the Key Concept Activities. Students can complete as much as they can during this Lesson, but they should be able to complete at least one activity.

Activity summaries

Key Concept Activity 1
This activity asks students to create a concept web about electrons.

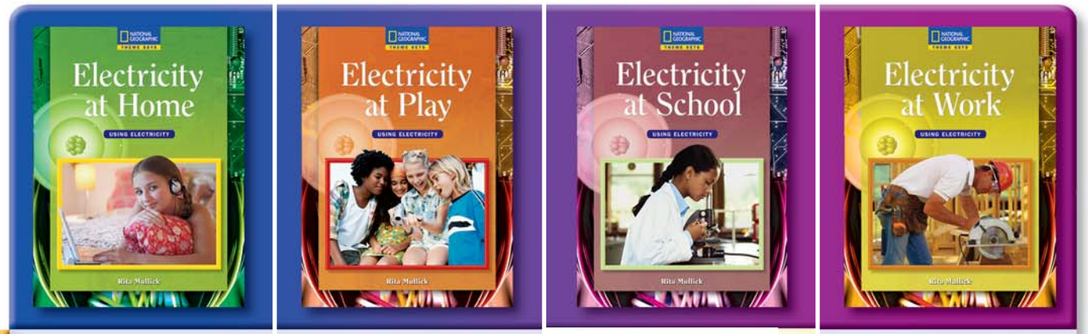


Key Concept Activity 2
This activity asks students to draw an electrical circuit.



Key Concept Activity 3
This activity asks students to write a paragraph or two about the appliances and machines they use.

Finish Reading: Pages 21–26 Small Groups



	Electricity at Home	Electricity at Play	Electricity at School	Electricity at Work
First Activity Block	*Pairs/Groups* **Key Concept Activities** Students can work in pairs or small groups to complete Key Concept Activity 1. They can also begin Key Concept Activity 2 at this time. Students should use the Student Book to complete these activities.	*Pairs/Groups* **Key Concept Activities** Students can work in pairs or small groups to complete Key Concept Activity 1. They can also begin Key Concept Activity 2 at this time. Students should use the Student Book to complete these activities.	With the Teacher **Discuss and Reread** • Review the genre. • Review using the genre article. • Reread parts of the genre article.	*Pairs/Groups* **Key Concept Activities** Students can work in pairs or small groups to complete Key Concept Activities 1. They can also begin Key Concept Activities 2 and 3 at this time. Students should use the Student Book to complete these activities.
Second Activity Block	*Pairs/Groups* **Continue Key Concept Activities** Students can continue working on Key Concept Activities 2 and 3. Time permitting, the teacher can meet with students reading *Electricity at Play* to assess students' progress on the Key Concept activities.	*Pairs/Groups* **Continue Key Concept Activities** Students can continue working on Key Concept Activities 2 and 3. Time permitting, the teacher can meet with students reading *Electricity at Play* to assess students' progress on the Key Concept activities.	*Pairs/Groups* **Key Concept Activities** Students can work in pairs or small groups to complete Key Concept Activity 1. They can also begin Key Concept Activities 2 and 3 at this time. Students should use the Student Book to complete these activities.	With the Teacher **Discuss and Reread** • Review the genre. • Review using the genre article. • Reread parts of the genre article.

With the Teacher Small Groups ELL

Lesson Notes for *Electricity at School*

Review reading a how-to book

Have students bring their *Content Reading Guide* Masters to the discussion. Have them turn to page 21 in their how-to book. Say:

I'm going to read about how to use an overhead projector. Here is the title of the how-to book: Overhead Projector User Manual.

Read the introduction and list of parts; point out the number labels on the illustration. Continue reading and pointing out other important features of the user manual. Say:

I see that the user manual gives a list of safety precautions. It is very important to read through these before using the overhead projector.

Continue making observations about the user manual that will help students draw conclusions about the important features of a how-to book.

Reread parts of the user manual

Have students flip through the how-to books. Have them notice the diagrams and bulleted lists. Say:

We are going to take turns rereading the user manual for the overhead projector. The first time we read, we will learn more about the topic.

Have students take turns reading the user manual. As needed, stop and explain any words or concepts students may need help understanding. After students have finished reading, say:

We've just read an overhead projector user manual. Now let's use your Content Reading Guide *to discuss the important features you found and things to consider.*

Have students read the user manual and point out the important features of a user manual.

With the Teacher Small Groups ELL

Lesson Notes for *Electricity at Work*

Review reading a how-to book

Have students bring their *Content Reading Guide* Masters to the discussion. Have them turn to page 21 in their how-to book. Say:

I'm going to read about how to use a forklift truck. Here is the title of the how-to book: Forklift Truck User Manual.

Read the introduction and list of parts; point out the number labels on the illustration. Continue reading and pointing out other important features of the user manual. Say:

I see that the user manual gives a list of safety precautions. It is very important to read through these before using a forklift truck.

Continue making observations about the user manual that will help students draw conclusions about the important features of a how-to book.

Reread parts of the user manual

Have students flip through the how-to books. Have them notice the diagrams and bulleted lists. Say:

We are going to take turns rereading the user manual for the forklift truck. The first time we read, we will learn more about the topic.

Have students take turns reading the user manual. As needed, stop and explain any words or concepts students may need help understanding. After students have finished reading, say:

We've just read a forklift truck user manual. Now let's use your Content Reading Guide *to discuss the important features you found and things to consider.*

Have students read the user manual and point out the important features of a user manual.

Check Understanding

Whole Class

Share Learning

By now, all students have read the first article and the genre article in the Student Book. They have worked together in mixed groups, in pairs, and as a class to discuss the Key Concepts. They have worked independently on the Key Concept Activities found on page 27 of the Student Book.

Now students can come together in mixed groups to share the Key Concept activities they have completed. Organize students into groups of four, with each student reading a different book. Explain that each student should share his or her work on the Key Concept Activities and compare how other members of the group completed the same assignment. Students should be able to explain another group member's activity, compared to his or her own.

Students can use questions like these to guide their discussion:

How is this group member's information similar to the information I found?

How is this information different?

How does this information relate to the Key Concepts?

After groups of students have finished discussing their projects, bring the class together. Students can share what they've learned by comparing a group member's project with their own.

Use the questions shown above as a guide for the class discussion.

Assessment Check

Key Concept Activity 1

Concept webs should

- ✔ have a label in the center.
- ✔ include at least four facts about electrons.
- ✔ be neatly completed.

Key Concept Activity 2

Drawings should

- ✔ include the parts of a circuit.
- ✔ be clearly labeled.
- ✔ be neatly completed.

Key Concept Activity 3

Paragraphs should

- ✔ explain about something that uses electricity.
- ✔ include information about how energy changed while the item was being used.
- ✔ tell how the item was useful.
- ✔ be neatly completed.

RESEARCH AND WRITE

Introduce Research and Write

Explain that students will write their own user manuals.

Have students turn to the Research and Write activity beginning on page 28 in their books. Explain that students will be working on steps 1 and 2 today and steps 3–5 in the next writing lesson. Then say:

I am going to read the introduction from the Electricity at Home *book. This introduction is specific to this book, but the introductions in your books will talk about the information you have. Follow along silently as I read to the class.*

Read the introduction and allow time for students to ask questions.

1. Study the Model

ELL

Read step 1 to the class. Then have students turn to page 21. Say:

On this page, you will find the beginning of a user manual. We are going to use the user manuals on pages 21–26 as a model for writing our own user manuals.

Look at the title. Notice how the title is in large letters and is easy to read. Titles should stand out from the rest of the information. The user manuals you write should have a title that is easy to read.

Continue in this way with each of the important parts of the user manuals. Then read the text in the blue box on page 28. This box lists the important parts of writing a user manual.

User Manual

- Break the information into easy-to-find sections.
- Present the information in bulleted lists.
- Use diagrams to support the text.
- Include important safety measures.

2. Choose an Appliance or Machine

Read step 2 to the class. Remind students that they should choose just one appliance or machine that is used in the area that is the focus of their books: at home, at play, at school, at work. They should take notes and think of safety precautions for using this appliance or machine. They can look in the library or on the Internet to get ideas for their user manuals.

Distribute the *Prewriting* Master to students. Explain that they will use this Master to organize their research and take notes. Read the introduction on the Master and discuss each part.

Students can work in pairs or independently to review the model and conduct research. Students can ask a classmate to help answer questions they may have. As students conduct research, circulate around the classroom to check that students are using the *Prewriting* Master correctly.

Check Progress

Bring the class together to discuss students' progress. Ask questions such as:

Has everyone chosen a topic and completed his or her research?

Are you finding enough information about your topic?

Remind students that they will have time to write, revise, and edit. They will then present their user manuals to the class.

RESEARCH AND WRITE

Discuss the Writing

Whole Class

Briefly discuss students' progress. Review pages 28–29 in the Student Book.

3. Write a User Manual

Read step 3 to the class while students follow along silently. Remind students to use the user manual in their books as a guide for writing their own user manuals. Remind students that when writing their user manuals, they should focus on getting their ideas on paper. They can fix spelling and grammar mistakes as they review and edit. Circulate around the room and meet with students to help them work through questions they may have about their writing.

4. Draw Diagrams

Read step 4 to the class. Remind students that user manuals include labeled diagrams that make the steps and parts of the appliance or machine in the user manual clearer.

5. Read over Your Work

Read step 5 to the class. Give students time to read through their user manuals to make sure that it is easy to follow, lists safety precautions, tells how to care for the appliance or machine, and includes diagrams. Remind students that they can also use a peer editor during this step. Peer editors should focus on spelling, grammar, and punctuation. They should also comment on whether the writing makes sense, is organized well, and is interesting.

Assessment Check

A well-written how-to book

- ✔ Subheads similar to the model are used to organize the text.
- ✔ Important information is presented in bulleted lists.
- ✔ Instructions are easy to follow.
- ✔ Safety precautions are included and stated clearly.
- ✔ At least one labeled diagram is used to clarify the text.
- ✔ Writing is free of mechanical errors.

An average how-to book

- ✔ Some subheads similar to the model are used to organize the text.
- ✔ Important information is presented in bulleted lists.
- ✔ Instructions are somewhat easy to follow.
- ✔ Safety precautions are included and somewhat clear.
- ✔ At least one labeled diagram is used to clarify the text.
- ✔ Writing has some mechanical errors.

A poorly-written how-to book

- ✔ Subheads similar to the model are not used to organize the text.
- ✔ Important information is not presented in bulleted lists.
- ✔ Instructions are not easy to follow.
- ✔ Safety precautions are not included or are not clear.
- ✔ Labeled diagrams do not apply to the text or are not included.
- ✔ Writing has many mechanical errors.

SHARING YOUR WORK

Present Your User Manual

Small Groups

As a class, have students turn to page 30 in their books. Read page 30 aloud to the class as students follow along silently. Explain that students will work independently to prepare their presentations.

Review the following steps with the class so that students understand each step in the process. Each student should participate in all the steps.

Individual Work

Step 1. Copy your labeled diagram onto an overhead transparency. Make sure your diagram is clearly drawn so the parts of your diagram are easy to see.

Step 2. Explain your appliance or machine to the class. Using your transparency on an overhead projector, show the class your appliance or machine and point out the different parts. Explain what the appliance or machine is used for and how it works.

Step 3. Explain the safety precautions. Explain any possible dangers there are when using your appliance or machine. Tell the class how to use the machine in the safest way possible.

Step 4. Show the class how to care for the appliance or machine. Explain how to clean, store, and care for parts of your machine.

Class Discussion

After each student has completed all four steps, have students discuss the process of writing a user manual and presenting an appliance or machine.

Students can work independently or in pairs to answer the following questions in their notebooks.

What did you like most about writing a user manual?

Did you learn something new from someone else's presentation?

Masters	Purpose
Prereading: 3-Column Chart	Provides a tool for recording students' prior knowledge about the topic before they read
Electricity at Home Vocabulary **Electricity at Play Vocabulary** **Electricity at School Vocabulary** **Electricity at Work Vocabulary**	Provides a tool for developing strategies for book-level vocabulary
Comprehension Model	Provides a Master that can be made into a transparency to model the comprehension strategy
Comprehension Strategy	Provides a tool to help students practice the comprehension strategy
Word Cards, Electricity at Home **Word Cards, Electricity at Play**	Provides cards that can be cut out and used to develop vocabulary
Share Learning	Provides a tool students can use in small groups to compare content across all Student Books
Key Concept Questions	Provides a tool students can use in small groups to answer the Key Concept questions shown on page 17 in the Student Book
Fluency Practice	Provides a tool for pairs of students as they reread the text to improve fluency
Content Reading Guide	Provides a tool to help students record specific information
Prewriting	Provides a tool for organizing students' ideas before they write
Open-Book Test	Provides an opportunity for students to demonstrate both their understanding of the content and their ability to read for specific information
Electricity at Home Test **Electricity at Play Test** **Electricity at School Test** **Electricity at Work Test**	Provides an opportunity for students to demonstrate their understanding of the content with differentiated multiple-choice and short-answer questions

Name _____ Book title _____

Prereading: 3-Column Chart

You will be reading about electricity. In the first column below, list some things that run on electricity. In the second column, explain how each thing is used. In the third column, write the place where this thing is used. After reading your book, you can add to the chart.

Thing that uses electricity	How it works	Where it is used

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Name _____

Vocabulary: Concept Map

The words below are from *Electricity at Home.* Find each word in the glossary of your book. Write a short definition on the first line. On the lines, write words that the vocabulary word is and is not. Then write words that describe the word. Finally, write a sentence using the vocabulary word.

1. circuit

Definition

What it is | What it is not

Descriptions

Sentence

2. electricity

Definition

What it is | What it is not

Descriptions

Sentence

3. electron

Definition

What it is | What it is not

Descriptions

Sentence

4. insulators

Definition

What it is | What it is not

Descriptions

Sentence

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Name _____

Vocabulary: Concept Map

The words below are from *Electricity at Play.* Find each word in the glossary of your book. Write a short definition on the first line. On the lines, write words that the vocabulary word is and is not. Then write words that describe the word. Finally, write a sentence using the vocabulary word.

1. circuit

Definition

What it is | What it is not

Descriptions

Sentence

2. electricity

Definition

What it is | What it is not

Descriptions

Sentence

3. electron

Definition

What it is | What it is not

Descriptions

Sentence

4. conductors

Definition

What it is | What it is not

Descriptions

Sentence

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Name _____

Vocabulary: Concept Map

The words below are from *Electricity at School*. Find each word in the glossary of your book. Write a short definition on the first line. On the lines, write words that the vocabulary word is and is not. Then write words that describe the word. Finally, write a sentence using the vocabulary word.

1. circuit

Definition

What it is | What it is not

Descriptions

Sentence

2. electricity

Definition

What it is | What it is not

Descriptions

Sentence

3. electron

Definition

What it is | What it is not

Descriptions

Sentence

4. electric current

Definition

What it is | What it is not

Descriptions

Sentence

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Name _____

Vocabulary: Concept Map

The words below are from *Electricity at Work.* Find each word in the glossary of your book. Write a short definition on the first line. On the lines, write words that the vocabulary word is and is not. Then write words that describe the word. Finally, write a sentence using the vocabulary word.

1. circuit

Definition

What it is | What it is not

Descriptions

Sentence

2. electricity

Definition

What it is | What it is not

Descriptions

Sentence

3. electron

Definition

What it is | What it is not

Descriptions

Sentence

4. resistance

Definition

What it is | What it is not

Descriptions

Sentence

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Name _____ Book title _____

Comprehension Model: Visualizing

Using Electricity

Of all the different types of energy we use in our daily lives, **electricity** is one of the most important. Electricity can be used to power many different things. It can give us light. It can keep us cool in the summer and warm in the winter. You can use it to make popcorn or watch your favorite movie. You can even use electricity to talk to your friends.

Did you know that it is **electrons** that make electric power possible? Everything on Earth is made of very small particles called atoms. Atoms are made of protons, neutrons, and electrons. The protons and neutrons are packed together to form what's called the nucleus of the atom. Whizzing around the outside of the nucleus are electrons that can roam from atom to atom. The movement of these tiny electrons is electricity.

All electrical devices, from simple flashlights to the most complex computers, operate on the same basic principle. It's called a **circuit.** A circuit can be thought of as a circle of electricity, which is how it got its name. A circuit is nothing more than a continuous loop or pathway through which electricity can flow.

We use electricity to wash and dry our clothes.

Steps for Visualizing

- Look for describing words (sense words).
- Look for comparisons.
- Add what you already know to what you read.
- Make a mental movie and edit it as you get new information.

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Name _____ Book title _____

Comprehension Strategy: Visualizing

Use this chart as you read. Write words that help you visualize in column 1 and what you see in your mind in column 2. Add your questions and responses in column 3.

Words that help me visualize	What I see in my mind	Questions and responses

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Name _____

Word Cards: Electricity at Home

Cut along the dotted lines. Mix your cards with a partner's. Deal 7 cards to each of you. Place the rest in a pile in the center of the table. To find a match, ask for the card that goes with the vocabulary word or definition you have on your card. If your partner does not have a match, then "go fish" from the center pile.

atoms	tiny particles that make up matter
circuit	the path along which electricity moves
conductors	materials through which an electric current moves easily
electricity	the energy of moving electrons
electrons	particles that move around the center of an atom
filament	a wire that glows when heated by an electric current
insulators	materials through which an electric current moves with difficulty
resistance	slowing down the flow of electrons

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Name _____

Word Cards: Electricity at Play

Cut along the dotted lines. Mix your cards with a partner's. Deal 7 cards to each of you. Place the rest in a pile in the center of the table. To find a match, ask for the card that goes with the vocabulary word or definition you have on your card. If your partner does not have a match, then "go fish" from the center pile.

atoms	tiny particles that make up matter
circuit	the path along which electricity moves
conductors	materials through which an electric current moves easily
electricity	the energy of moving electrons
electrons	particles that move around the center of an atom
filament	a wire that glows when heated by an electric current
insulators	materials through which an electric current moves with difficulty
magnetism	force that attracts or repels

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Name _____ Book title _____

Share Learning

Work with students who have read books different from yours. Each group member is the expert on the electricity used in one place. Each member should share information from his or her book to complete a row on the chart.

Place where electricity is used	Ways electricity is used in this place	Example of electric circuit in this place	How electric energy changes

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Name _____ Book title _____

Key Concept Questions

Read the questions on page 17 of your book. Think about what you have learned from reading your book. Then answer the questions below.

1. What is electricity? What do electrons have to do with electricity?

2. How are conductors and insulators used together?

3. What does a switch do in an electric circuit?

4. What other forms of energy can electric energy change to?

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Name _____ Book title _____

Fluency Practice

You will be reading parts of your book with a partner. You will take turns being the reader and the listener.

Readers will read from their own books. You will pick a short section to read, and you will read this same section three times.

Listeners will correct missed words. When you hear a missed word, say, STOP, and the word. Have the reader repeat this word. Then, ask the reader to read that sentence again. After each reading, tell the reader how to improve. Then fill out the checklist for the reader.

Reading Checklist

Reader Name: _____

Reading #1: great good so-so not very good

Reading #2: great good so-so not very good

Reading #3: great good so-so not very good

Check how the reader improved

_____ My partner read more smoothly.

_____ My partner knew more words.

_____ My partner stopped for more punctuation.

_____ My partner read with more expression.

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Name _____ Book title _____

Content Reading Guide: How-to Books

You can read how-to books to find out how to do or make something. As you read pages 21–26 in your book, look for the important features of a user manual. Also look for any special things to consider when using a machine.

Topic: _____

Important features	Things to consider

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Name _____ Book title _____

Prewriting

You will be writing a user manual. Your manual should include information about how to use an electrical machine that is found in the area your book is about. Use the user manual beginning on page 21 as a model.

Machine: _____

Subheads to use to organize my information: _____

_____

_____

How to use this machine: _____

_____

_____

Safety precautions: _____

_____

_____

How to care for this machine: _____

_____

_____

Other important information to include: _____

_____

_____

_____

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Name _____ Book title _____

Open-Book Test

1. _____ move around the center of an atom.
2. The energy of moving electrons is called _____.
3. Electricity moves along a path called a _____.
4. Copper and iron make good _____.
   Plastic and rubber make good _____.
5. The four types of energy that electric energy can change to are

   _____

   _____

6. How does a closed circuit work?

   _____

   _____

7. What are three examples of things that use electricity in the place you read about?

   _____

   _____

8. Look at the diagram on page 21 of your book. What part or parts of this machine are labeled number 3?

   _____

   _____

9. What is being shown in Figure B of the user manual in your book?

   _____

   _____

10. What part of a user manual uses pictures to show what the information means?

    _____

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Name _____

Test

Circle the letter of the correct answer.

1. Where are electrons located in an atom?

A. around the nucleus

B. next to the protons

C. next to the neutrons

D. in the nucleus

2. What happens when electrons bump into each other?

A. They stop moving.

B. They speed up.

C. They move through wires.

D. They produce heat.

3. A toaster is an appliance that changes electrical energy into

A. sound energy.

B. mechanical energy.

C. heat energy.

D. none of the above

4. Which is the best example of something that uses mechanical energy?

A. a lamp

B. a washing machine

C. a power cord

D. a doorbell

5. All how-to books have

A. a title.

B. labeled diagrams.

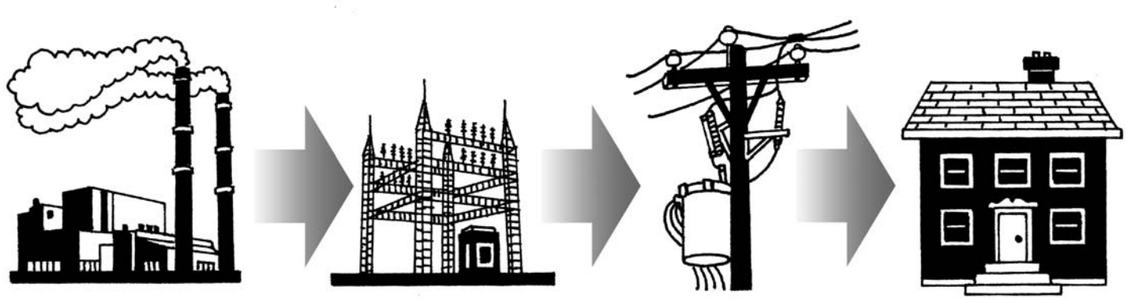
C. important information.

D. all of the above

6. Explain the difference between a closed circuit and an open circuit.

Use the flow diagram to answer questions 7–8.

How Electricity Gets to Your Home



1. A power station generates electricity.
2. Power lines carry electricity to many substations where electrical energy is made.
3. Power lines carry electricity to your home.
4. Appliances and machines in your home use electricity.

7. Write two sentences that tell what this flow diagram is mostly about and what steps the diagram shows.

8. Explain what is happening in the second step of this flow diagram.

Name _____

Test

Circle the letter of the correct answer.

1. Where are electrons located in an atom?

A. around the nucleus

B. next to the protons

C. next to the neutrons

D. in the nucleus

2. When happens when electrons collide?

A. They stop moving.

B. They speed up.

C. They move through wires.

D. They produce heat.

3. A game show buzzer is a machine that changes electrical energy into

A. heat energy.

B. mechanical energy.

C. sound energy.

D. none of the above

4. Which is the best example of something that uses mechanical energy?

A. a hot water heater

B. a motor

C. a power cord

D. a digital clock

5. All how-to books have

A. a title.

B. labeled diagrams.

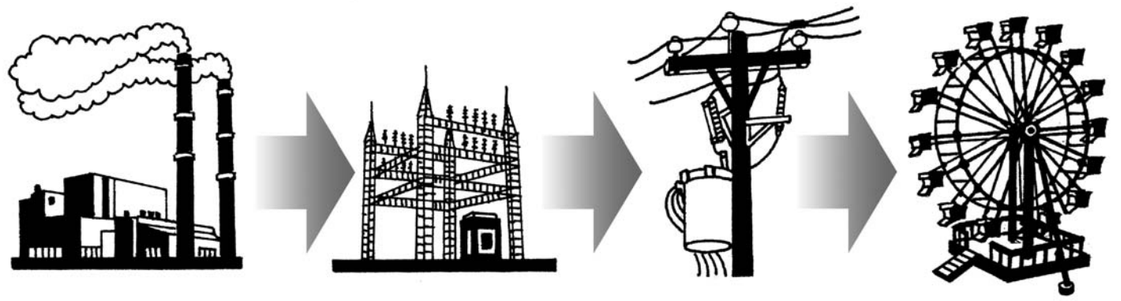
C. important information.

D. all of the above

6. Explain the difference between a closed circuit and an open circuit.

Use the flow diagram to answer questions 7–8.

How Electricity Gets to an Amusement Park



1. A power station generates electricity.
2. Power lines carry electricity to many substations where electrical energy is made.
3. Power lines carry electricity to an amusement park.
4. Rides at an amusement park use electricity.

7. Write two sentences that tell what this flow diagram is mostly about and what steps the diagram shows.

8. Explain what is happening in the second step of this flow diagram.

Name _____

Test

Circle the letter of the correct answer.

1. Where are electrons located in an atom?

A. around the nucleus

B. next to the protons

C. next to the neutrons

D. in the nucleus

2. When happens when electrons collide?

A. They stop moving.

B. They speed up.

C. They move through wires.

D. They produce heat.

3. A school bell is a machine that changes electrical energy into

A. heat energy.

B. mechanical energy.

C. sound energy.

D. none of the above

4. Which is the best example of something that uses mechanical energy?

A. an overhead projector

B. a floor polisher

C. a power cord

D. a hot water heater

5. All how-to books have

A. a title.

B. labeled diagrams.

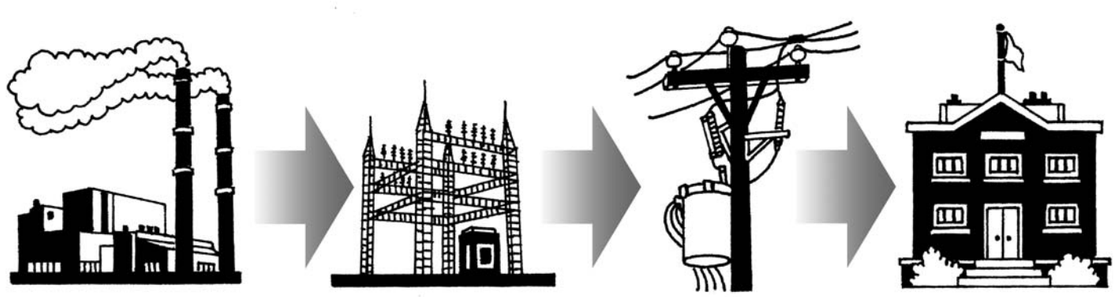
C. important information.

D. all of the above

6. Explain the difference between a closed circuit and an open circuit.

Use the flow diagram to answer questions 7–8.

How Electricity Gets to Your School



1. A power station generates electricity.
2. Power lines carry electricity to many substations where electrical energy is made.
3. Power lines carry electricity to your school.
4. Equipment in your school uses electricity.

7. Write two sentences that tell what this flow diagram is mostly about and what steps the diagram shows.

8. Explain what is happening in the second step of this flow diagram.

Name _____

Test

Circle the letter of the correct answer.

1. Where are electrons located in an atom?

A. around the nucleus

B. next to the protons

C. next to the neutrons

D. in the nucleus

2. When happens when electrons collide?

A. They stop moving.

B. They speed up.

C. They move through wires.

D. They produce heat.

3. A telephone is a machine that changes electrical energy into

A. heat energy.

B. mechanical energy.

C. sound energy.

D. none of the above

4. Which is the best example of something that uses mechanical energy?

A. a security system

B. a motor

C. a power cord

D. a soldering tool

5. All how-to books have

A. a title.

B. labeled diagrams.

C. important information.

D. all of the above

6. Explain the difference between a closed circuit and an open circuit.

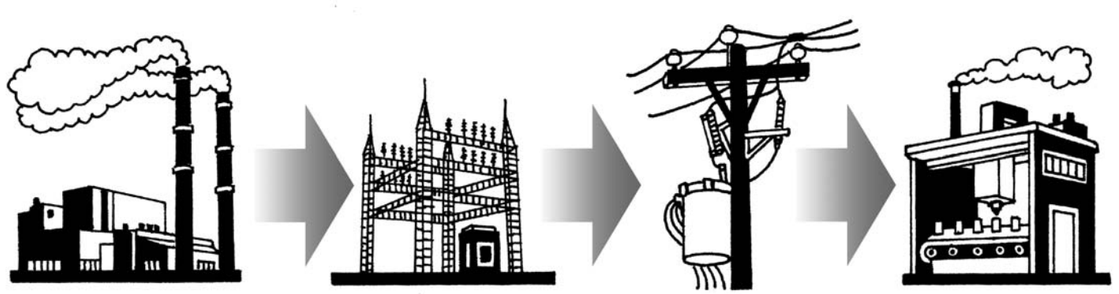
_____

_____

_____

Use the flow diagram to answer questions 7–8.

How Electricity Gets to a Factory



1. A power station generates electricity.
2. Power lines carry electricity to many substations where electrical energy is made.
3. Power lines carry electricity to a factory.
4. Machines in a factory use electricity.

7. Write two sentences that tell what this flow diagram is mostly about and what steps the diagram shows.

_____

_____

_____

8. Explain what is happening in the second step of this flow diagram.

_____

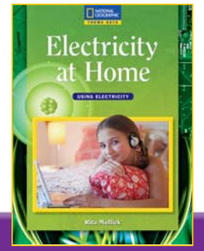
_____

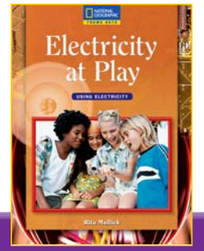
_____

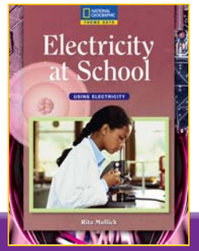
Test Answers

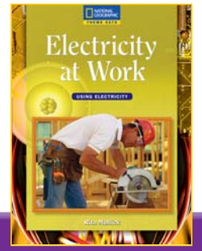
OPEN-BOOK TEST

Distribute the *Open-Book Test* Master to students. This allows students to demonstrate both their understanding of the content and their ability to read for specific information. Students should work quietly and independently to complete this test during this 20-minute period.









Test Questions

1. [Electrons] **move around the center of an atom.**
2. **The energy of moving electrons is called** [electricity].
3. **Electricity moves along a path called a** [circuit].
4. **Copper and iron make good** [conductors]. **Plastic and rubber make good** [insulators].
5. **The four types of energy that electric energy can change to are** [heat, light, sound, and mechanical].
6. **How does a closed circuit work?** [A closed circuit has wires in a complete loop that let electricity flow from a power source to the appliance and back to the power source.]

7. What are three examples of things that use electricity in the place you read about?	Answers will vary but may include lamps, ovens, refrigerators, and toasters.	Answers will vary but may include amusement park rides, video games, televisions, computers, and toy trains.	Answers will vary but may include lights, overhead projectors, fish tank filters, computers, and floodlights.	Answers will vary but may include telephones, computers, cranes, forklifts, motors, lights, and security systems.
8. Look at the diagram on page 21 of your book. What part or parts of this machine are labeled number 3?	Power cord	Disc tray and Stop button	Head release button	Multifunction handle
9. What is being shown in Figure B of the user manual in your book?	The toaster should not be put in water.	Where the remote control buttons are.	The overhead projector should not be exposed to direct sunlight.	How to read if the battery is charged.
10. What part of a user manual uses pictures to show what the information means?	diagrams	diagrams	diagrams	diagrams

Answers to Multiple-Choice Questions

1. **A**
2. **D**
3. **C**
4. **B**
5. **D**

Scoring Guides

Struggling readers may provide responses that are less complete than those provided by more advanced readers. You can take this into account when grading students' responses.

Question 6

Complete The response is a complete sentence explaining that a closed circuit is a loop that carries electricity from a power source to the appliance and back to the power source. An open circuit has a gap in it that stops the flow of electricity.

Partial The response is a complete or incomplete sentence explaining that a circuit is a loop but only explains what a closed or open circuit is.

Unsatisfactory/Incorrect The response is an incomplete sentence and includes little or no information about closed and open circuits.

Question 7

Complete The response includes two complete sentences that identify the topic of the diagram as the steps in getting electricity from a power station to a home. The response includes information related to the route that electricity takes, including leaving the power station, traveling by wires to substations, and traveling by wires to the home.

Partial The response includes one complete sentence that tells what the diagram is partly about. The response includes some information related to the route that electricity takes from the power station to the home.

Unsatisfactory/Incorrect The response is an incomplete sentence that does not relate to the diagram. The response does not refer to the route that electricity takes from the power station to the home.

Question 8

Complete The response identifies the second step of the diagram as traveling by wires to substations.

Partial The response includes identifying the second step as wires *or* substations.

Unsatisfactory/Incorrect The response does not identify the appropriate step.

Answers to Multiple-Choice Questions

1. **A**
2. **D**
3. **C**
4. **B**
5. **D**

Scoring Guides

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Partial The response is a complete or incomplete sentence explaining that a circuit is a loop but only explains what a closed or open circuit is.

Unsatisfactory/Incorrect The response is an incomplete sentence and includes little or no information about closed and open circuits.

Question 7

Complete The response includes two complete sentences that identify the topic of the diagram as the steps in getting electricity from a power station to an amusement park. The response includes information related to the route that electricity takes, including leaving the power station, traveling by wires to substations, and traveling by wires to an amusement park.

Partial The response includes one complete sentence that tells what the diagram is partly about. The response includes some information related to the route that electricity takes from the power station to an amusement park.

Unsatisfactory/Incorrect The response is an incomplete sentence that does not relate to the diagram. The response does not refer to the route that electricity takes from the power station to an amusement park.

Question 8

Complete The response identifies the second step of the diagram as traveling by wires to substations.

Partial The response includes identifying the second step as wires *or* substations.

Unsatisfactory/Incorrect The response does not identify the appropriate step.

Answers to Multiple-Choice Questions

1. **A**
2. **D**
3. **C**
4. **B**
5. **D**

Scoring Guides

Struggling readers may provide responses that are less complete than those provided by more advanced readers. You can take this into account when grading students' responses.

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Question 7

Complete The response includes two complete sentences that identify the topic of the diagram as the steps in getting electricity from a power station to a school. The response includes information related to the route that electricity takes, including leaving the power station, traveling by wires to substations, and traveling by wires to a school.

Partial The response includes one complete sentence that tells what the diagram is partly about. The response includes some information related to the route that electricity takes from the power station to a school.

Unsatisfactory/Incorrect The response is an incomplete sentence that does not relate to the diagram. The response does not refer to the route that electricity takes from the power station to a school.

Question 8

Complete The response identifies the second step of the diagram as traveling by wires to substations.

Partial The response includes identifying the second step as wires *or* substations.

Unsatisfactory/Incorrect The response does not identify the appropriate step.

Answers to Multiple-Choice Questions

1. **A**
2. **D**
3. **C**
4. **B**
5. **D**

Scoring Guides

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Complete The response includes two complete sentences that identify the topic of the diagram as the steps in getting electricity from a power station to a factory. The response includes information related to the route that electricity takes, including leaving the power station, traveling by wires to substations, and traveling by wires to a factory.

Partial The response includes one complete sentence that tells what the diagram is partly about. The response includes some information related to the route that electricity takes from the power station to a factory.

Unsatisfactory/Incorrect The response is an incomplete sentence that does not relate to the diagram. The response does not refer to the route that electricity takes from the power station to a factory.

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Complete The response identifies the second step of the diagram as traveling by wires to substations.

Partial The response includes identifying the second step as wires *or* substations.

Unsatisfactory/Incorrect The response does not identify the appropriate step.

Notes

NATIONAL GEOGRAPHIC

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Colonial America

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Communities and Their Locations

Cultures and Celebrations

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Immigration Today

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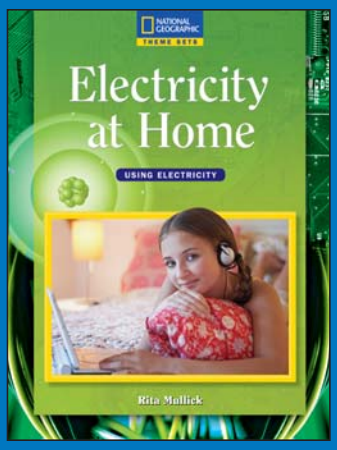

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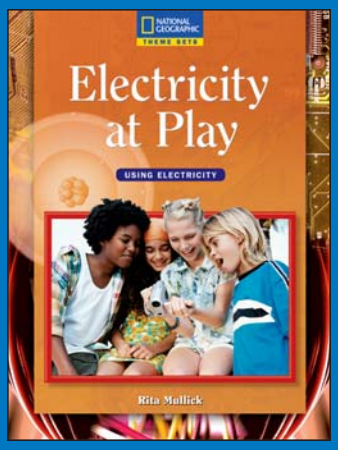

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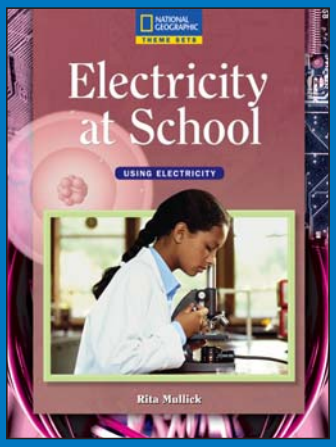

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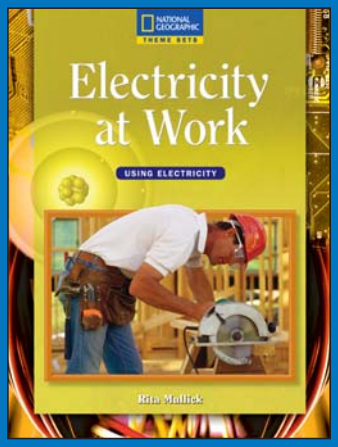

Level D

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